

NRCS State Resource Assessment 2012: Priority Resource Concerns

Washington State

May 2013



2012



**USDA NATURAL RESOURCES
CONSERVATION SERVICE**

**WASHINGTON STATE
2012 STATE RESOURCE ASSESSMENT**



USDA Natural Resources Conservation Service (NRCS)
Washington State Office, Spokane
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Introduction

The intent of this document is to provide an overview of the USDA Natural Resources Conservation Service (NRCS) Washington 2012 State Resource Assessment (SRA) process and present the final resource concern priorities, treatment areas and acreages. This document updates the original SRA published in 2011.

The NRCS Washington 2012 SRA is based on parameters and guidance established by the NRCS National Office. Within these national parameters, NRCS Washington utilized the state resource inventory and assessment products that were developed through the Local Work Group (LWG) process in 2009, 2010 and 2011, and the 2012 Tribal Resource Assessment (TRA).

The national guidelines established that this assessment will address locally identified resource concerns on five landuses: crop, forest, range, pasture and other associated agriculture lands. Once the LWGs and tribes identified their local priority resource concerns for each of these landuses, the assessment process was used to identify the targeted treatment areas and associated acreages.

The 2012 SRA will be the foundation for Washington NRCS to address the identified resource concerns on private and tribal lands. It will also be the basis for NRCS resource-based performance planning, workforce planning, and budget and allocation formulation, for fiscal years 2013 through 2015.

NRCS program planning and delivery includes the SRA and TRA priority treatment areas as a part of the NRCS screening and ranking tools. Landowner applications for NRCS programs are given a higher ranking if the application addresses one or more of the SRA Priority Resource Concerns in these areas.

Below you will find a summary of the identified priority resource concerns followed by five sections, one for each of the five landuse categories. Each landuse section provides the assessment findings for the associated resource concerns, estimated acreages needing treatment, and treatment area maps. Within each of these sections, the SRA and tribal findings are listed separately.

At the end of the document are the appendices. These contain additional detailed discussions related to the process used for developing the SRA and TRA findings. Included are definitions for the priority resource concerns and the goals for addressing these resource concerns.

Summary List of the State and Tribal Priority Resource Concerns

Below is a summary of the Priority Resource Concerns identified through the SRA and TRA process, and the associated landuses on which these resource concerns will be addressed. Nine of the priority resource concerns were identified in both the SRA and TRA, though the corresponding landuses may differ somewhat. There are four resource concerns unique to the SRA and two resource concerns unique to the TRA. These differences are indicated below and on the maps found later in the document.

(*) – Unique to the State Resource Assessment (T) – Unique to the Tribal Resource Assessment

SOIL EROSION - Sheet, rill, and wind erosion

- Crop, Forest, Range, Pasture and Other Associated Ag lands

SOIL EROSION - Excessive bank erosion from streams, shorelines, or water conveyance channels, also from forest roads (T)

- Crop, Forest, Range, Pasture and Other Associated Ag lands

EXCESS/INSUFFICIENT WATER - Inefficient use of irrigation water

- Crop, Pasture

WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater

- Crop, Range, Pasture

WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications

- Crop, Forest, Range, Pasture and Other Associated Ag lands

WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters (*)

- Crop

WATER QUALITY DEGRADATION - Excessive sediment in surface waters

- Crop, Forest, Range, Pasture and Other Associated Ag lands

WATER QUALITY DEGRADATION - Elevated water temperature (T)

- Crop, Forest, Range, Pasture and Other Associated Ag lands

DEGRADED PLANT CONDITION - Excessive plant pest pressure

- Crop, Forest, Range, Pasture and Other Associated Ag lands

DEGRADED PLANT CONDITION - Undesirable plant productivity and health

- Crop, Forest, Range, Pasture and Other Associated Ag lands

DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation

- Crop, Forest, Range, Pasture and Other Associated Ag lands

INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

- Crop, Forest, Range, Pasture and Other Associated Ag lands

INEFFICIENT ENERGY USE - Equipment and Facilities (*)

- All Landuses

INEFFICIENT ENERGY USE - Field Operations (*)

- All Landuses

The 2012 State Resource Assessment

Priority Treatment Areas Described

The SRA used geospatial datasets from various sources to assist with identifying and targeting the treatment areas on private lands. These datasets were used as indicators of the extent of the resource concern on the landuses and resulted in a number of different treatment areas. If there was no geospatial resource data available for this purpose, then the local knowledge and expertise of the NRCS resource specialists was utilized to identify targeted areas.

The tribal treatment areas were developed differently. There are only five tribal priority treatment areas, one for each of the designated landuses. Each tribal priority treatment area essentially encompasses one of the five landuses on tribally owned lands, which means there is one tribal map for each landuse. Within each of these areas, the tribes will address their identified priority resource concerns. The tribal treatment areas include both on-reservation and off-reservation tribal lands.

Each landuse section below provides treatment area maps and acreages for each resource concern identified through the SRA and TRA processes.

Acreages Defined

National NRCS guidelines require acreages to be determined for three categories. These are defined as:

- **Potential At Risk Acres** - land that is at risk or vulnerable to the resource concern regardless of whether conservation treatment has been applied and maintained.
- **Acres Needing Treatment** - the extent of the land that has not been treated for the resource concern according to NRCS FOTG criteria.
- **Priority Treatment Acres** - the land use acres identified for treatment for a specific resource concern during the 3 year period from FY 2013 through FY 2015.

Most of the acreages shown in the following tables are estimates using geospatial landuse information from either federal, state or tribal datasets. Some of the acreages were developed from information provided by NRCS Resource Specialists based on their expertise and knowledge of local conditions.

CROP LANDUSE

Definition - Land used primarily for the production and harvest of annual or perennial field, forage, food, fiber, horticultural and/or energy crops.

List of the SRA Priority Resource Concerns on the Crop Landuse

- SOIL EROSION - Sheet, rill, and wind erosion
- INSUFFICIENT WATER - Inefficient use of irrigation water
- WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters
- WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters
- WATER QUALITY DEGRADATION - Excessive sediment in surface waters
- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

SOIL EROSION - Sheet, rill, and wind erosion

Sheet, rill and wind erosion is caused by the detachment and transportation of soil particles caused by rainfall runoff or splash, irrigation runoff, or by wind.

Sheet and rill erosion is caused primarily from rainfall from late fall through spring, and especially from rain on snow events when the soils are frozen. Additional information related to Sheet and Rill erosion can be found in Appendix II.

Wind erosion occurs when the soils are not protected by adequate crop cover, crop residues or other conservation practices, and the wind picks up enough velocity to detach the finer soil particles on the land. Additional information related to Wind erosion can be found in Appendix II.

Washington State Priority Resource Concern	CROP		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
SOIL EROSION - Sheet, rill, and wind erosion	7,123,000	4,440,000	426,600

Fig. 1 – SRA Acreage Table for Crop – Sheet, rill, and wind erosion

Crop – Sheet, Rill, and Wind Erosion - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Cropland type subsets.
- **NRCS Statewide Soil Survey derivatives:** Sheet and Rill Erosion Risk and Wind Erodibility Index.
- **NRCS Climatic C Factor isobars** – Index of climatic erosivity, specifically wind speed and soil moisture.
- **NRCS Water and Climate Center PRISM** - Average Annual Precipitation.

EXCESS/INSUFFICIENT WATER - Inefficient use of irrigation water

Inefficient use of irrigation water impacts on- and off-site water quantity and quality. Irrigation systems and water management practices can waste water and negatively affect farm profitability.

Washington State Priority Resource Concern	CROP		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
INSUFFICIENT WATER - Inefficient use of irrigation water	1,574,500	808,500	174,850

Fig. 3 – SRA Acreage Table for Crop - Inefficient use of irrigation water

Crop – Inefficient use of irrigation Water - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Irrigated cropland type subsets.
- **East Area criteria:** All irrigated cropland; all cropland in the Northeast Team.
- **Central Area criteria:** Only rill or flood irrigation in Grant, Adams and Douglas counties, all irrigated cropland in other counties.
- **West Area criteria:** All irrigated cropland.

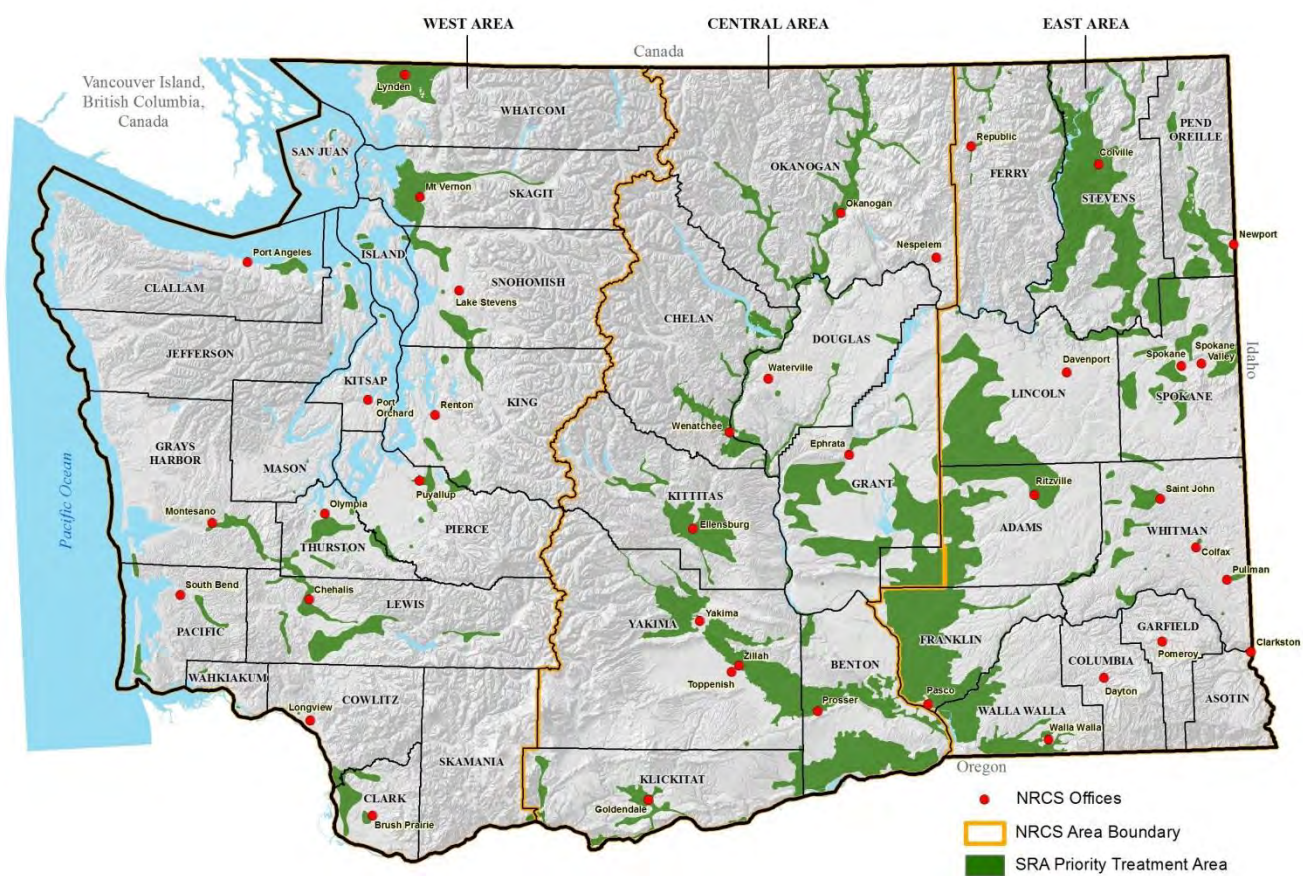


Fig. 4 - Crop – Inefficient Use of Irrigation Water Resource Concern Priority Treatment Area Map

WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater

Nutrients (organics and inorganics) are a resource concern when transported to receiving waters through surface runoff, leaching into shallow ground waters, or both in quantities that degrade water quality and limit use for intended purposes.

Washington State Priority Resource Concern	CROP		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater	7,367,000	4,603,500	425,000

Fig. 5 – SRA Acreage Table for Crop - Excess nutrients in surface and groundwater

Crop – Excess Nutrients in Surface and Ground Waters - Resource Concern Indicator(s):

- **Washington State Department of Ecology (WDOE) Dairy Farms 2003** - locations of dairy farms in Washington State that are holders of a Milk Producers License issued by Washington State's Department of Agriculture.
- **US Geological Survey (USGS) Distribution of Elevated Nitrate Concentrations in Ground Water in Washington State 2008** – Nitrate concentration probability areas.
- **Central Area criteria:** Added dry cropland in Sagebrush Flats and northern Grant County.
- Local knowledge and expertise of the NRCS Area specialists.

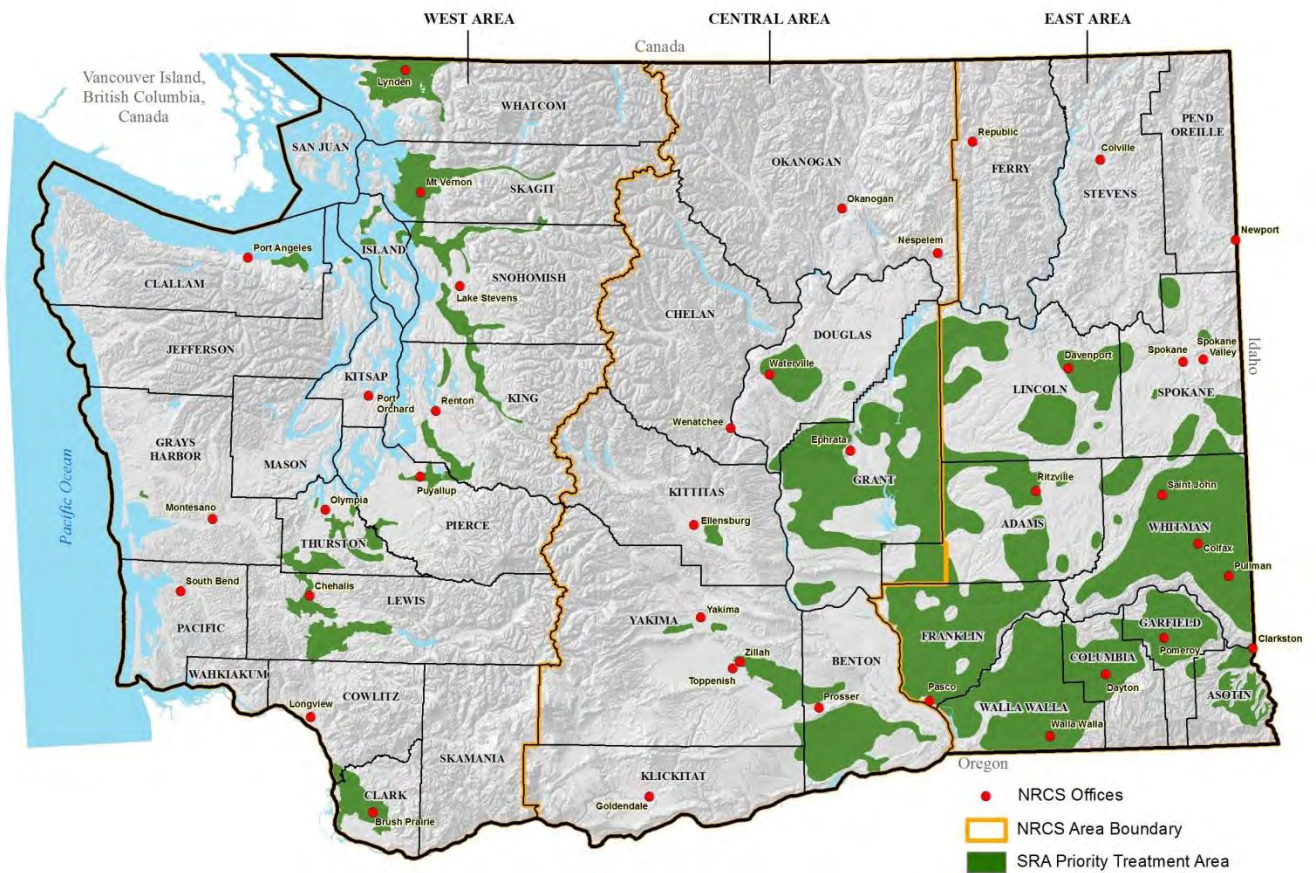


Fig. 6 - Crop – Excess Nutrients in Surface and Ground Waters Resource Concern Priority Treatment Area Map

WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters

Pesticides are a resource concern when transported to receiving waters in quantities that degrade water quality and limit use for intended purposes.

Washington State Priority Resource Concern	CROP		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters	7,367,000	778,000	177,000

Fig. 7 – SRA Acreage Table for Crop - Pesticides transported to surface and ground waters

Crop – Pesticides transported to surface and ground waters - Resource Concern Indicator(s):

- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Orchards, vineyards and vegetables croplands subset.
- **USDA Farm Service Agency (FSA)** - Conservation Reserve Enhancement Program (CREP) Streams.
- **West Area criteria:** Vegetable crops in association with surface waters.
- **Central Area criteria:** Orchards and vineyards in association with surface waters.
- **East Area criteria:** Irrigated cropland and alfalfa fields and CREP streams in Snake River Team.

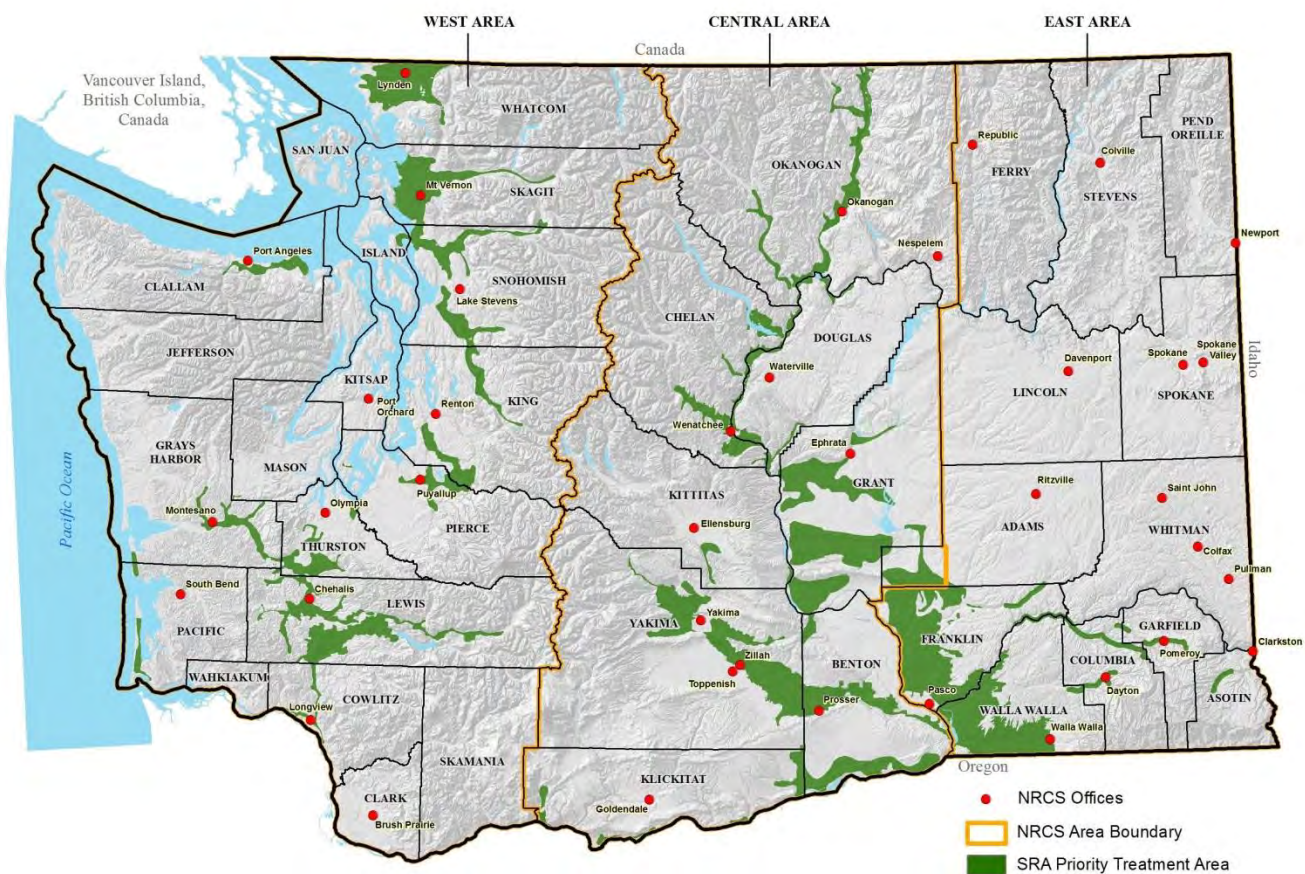


Fig. 8 - Crop – Pesticides Transported to Surface and Ground Waters Resource Concern Priority Treatment Area Map

WATER QUALITY DEGRADATION - Excessive sediment in surface waters

This resource concern is related to the off-site transport of sediment from sheet, rill, gully, and wind erosion into surface water that threatens to degrade surface water quality and limit use for intended purposes. When sediment enters the water column it increases turbidity and carries pollutants such as nutrients and pesticides.

Washington State Priority Resource Concern	CROP		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
WATER QUALITY DEGRADATION - Excessive sediment in surface waters	7,584,000	3,055,000	325,500

Fig. 9 – SRA Acreage Table for Crop - Excessive sediment in surface waters

Crop – Undesirable Plant Productivity and Health - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Row crops subset.
- **East Area criteria:** All cropland.
- **Central Area criteria:** Row crops in association with surface waters.
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.

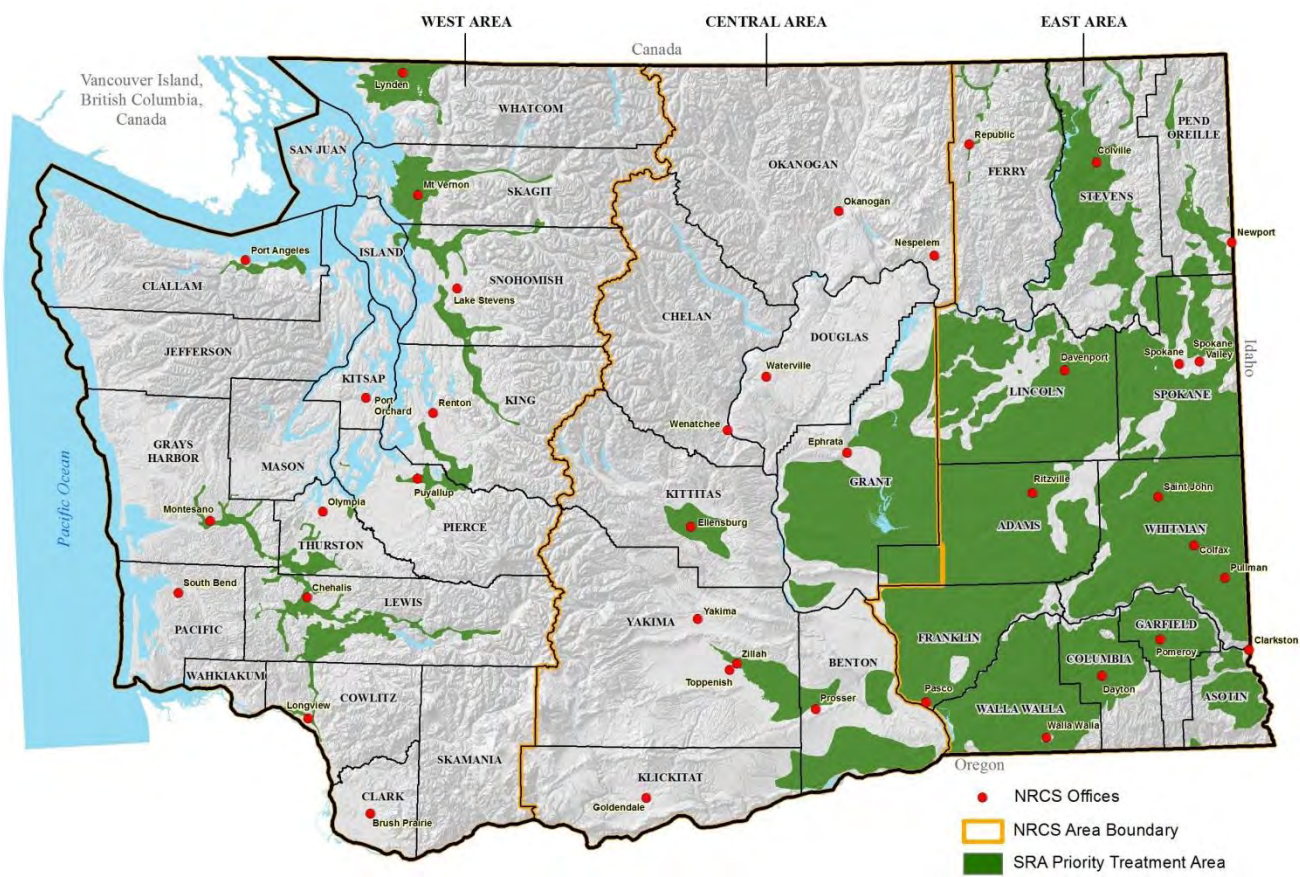


Fig. 10 - Crop – Excessive Sediment in Surface Waters Resource Concern Priority Treatment Area Map

INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

Habitat is degraded when the quantity, quality, or connectivity of food, cover, space, shelter, and/or water is inadequate to meet requirements of identified fish, wildlife, and invertebrate species.

Washington State Priority Resource Concern	CROP		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation	1,044,000	420,050	34,350

Fig. 11 – SRA Acreage Table for Crop - Habitat Degradation

Crop – Habitat Degradation - Resource Concern Indicator(s):

- **USDA Farm Service Agency (FSA)** - Conservation Reserve Program (CRP) Lands.
- **USDA Natural Resources Conservation Service (NRCS)** - 2013 Sage Grouse Initiative (SGI) Priority Areas.
- **Washington State Department of Agriculture (WSDA)** - 2011 Crop and Pasture lands.
- **Washington Department of Health (WDOH)** - 2013 Shellfish Growing Areas.
- **East Area criteria:** CRP in the SGI Priority Area.
- **Central Area criteria:** CRP in the SGI Priority Area.
- **West Area criteria:** All crop and pasture lands.

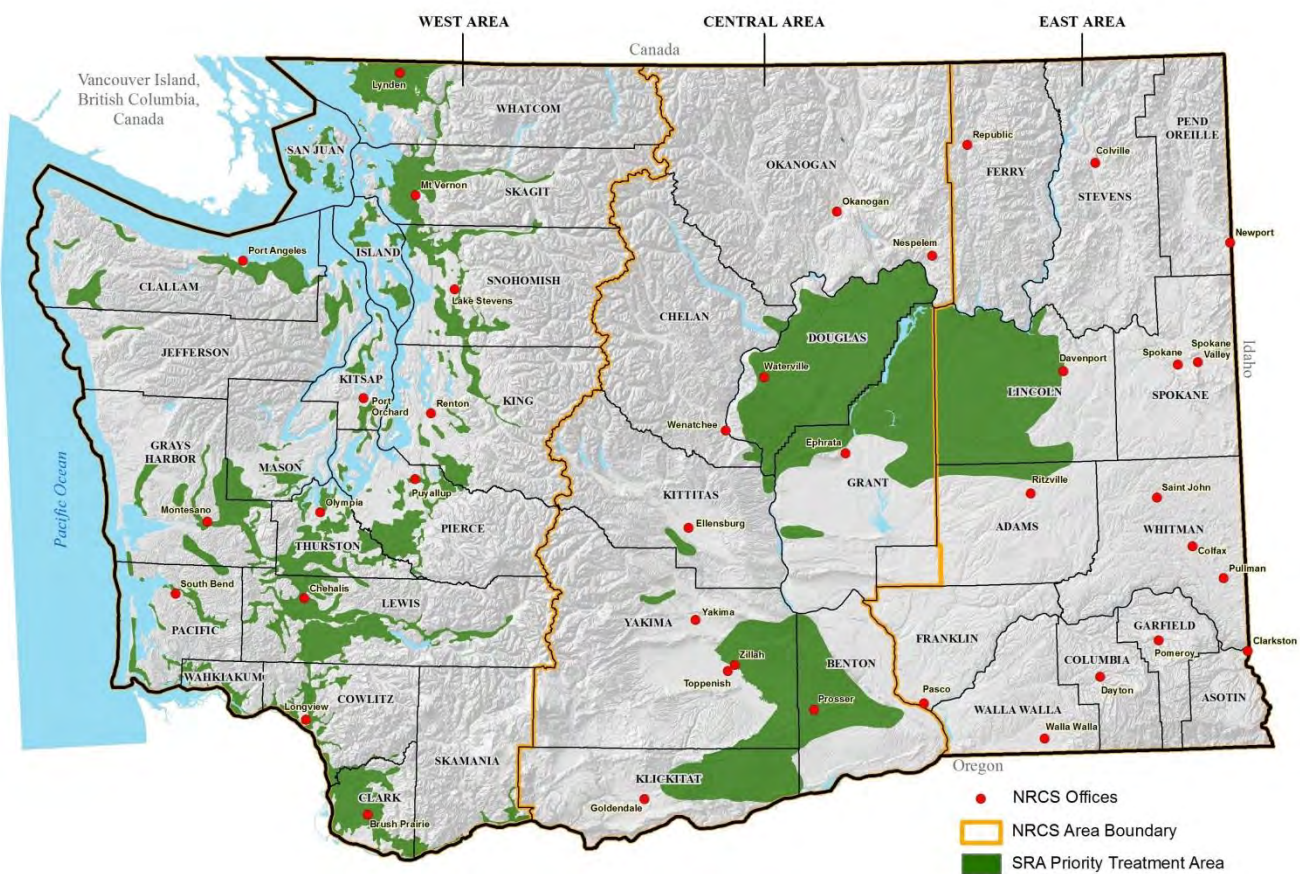


Fig. 12 - Crop – Habitat Degradation Resource Concern Priority Treatment Area Map

Tribal Priority Resource Concerns on the Crop Landuse

The Priority Treatment Acres for each resource concern show the amount of acreage that all participating tribes will try to address on this particular landuse from 2013 to 2015.

Washington Tribal Priority Resource Concern	CROP		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
SOIL EROSION - Sheet, rill, and wind erosion	783,400	229,400	76,700
SOIL EROSION - Excessive bank erosion from streams, shorelines, or water conveyance channels; also from forest roads	783,400	374,600	91,200
INSUFFICIENT WATER - Inefficient use of irrigation water	783,400	568,200	110,600
WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater	783,400	205,200	74,300
WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications	783,400	185,800	72,300
WATER QUALITY DEGRADATION - Excessive sediment in surface waters	783,400	205,200	74,300
WATER QUALITY DEGRADATION - Elevated water temperature	783,400	205,200	74,300
DEGRADED PLANT CONDITION - Excessive plant-pest pressure	783,400	326,200	86,400
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	783,400	568,200	110,600
DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation	783,400	205,200	74,300
INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation	783,400	568,200	110,600

Fig. 13 – Tribal Resource Assessment Acreage Table for the Crop Landuse

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FOREST LANDUSE

Definition - Land on which the primary vegetation is forest (climax, natural or introduced plant community) and use is primarily for production of wood products and/or non-timber forest products.

List of the SRA Priority Resource Concerns on the Forest Landuse

- WATER QUALITY DEGRADATION - Excessive sediment in surface waters
- DEGRADED PLANT CONDITION - Excessive plant pest pressure
- DEGRADED PLANT CONDITION - Undesirable plant productivity and health
- DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation
- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

WATER QUALITY DEGRADATION - Excessive sediment in surface waters

This resource concern is related to the off-site transport of sediment from sheet, rill, gully, and wind erosion into surface water that threatens to degrade surface water quality and limit use for intended purposes. When sediment enters the water column it increases turbidity and carries pollutants such as nutrients and pesticides.

Washington State Priority Resource Concern	FOREST		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
WATER QUALITY DEGRADATION - Excessive sediment in surface waters	3,179,000	1,471,100	137,100

Fig. 15 – SRA Acreage Table for Forest - Excessive sediment in surface waters

Forest – Excessive Sediment in Surface Waters - Resource Concern Indicator(s):

- **East Area criteria:** All private forest.
- **West Area criteria:** All private forest.
- **Central Area criteria:** All private forest, including forest roads within 300 feet of a stream crossing and including stream crossings.
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.

DEGRADED PLANT CONDITION - Excessive plant-pest pressure

This resource concern is related to the excessive pest damage to plants, including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. As an example, this concern addresses invasive plant, animal, and insect species.

Washington State Priority Resource Concern	FOREST		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
DEGRADED PLANT CONDITION - Excessive plant-pest pressure	1,549,000	1,190,500	150,750

Fig. 17 – SRA Acreage Table for Excessive plant-pest pressure

Forest – Excessive Plant Pest Pressure - Resource Concern Indicator(s):

- **Washington State Department of Natural Resources (WDNR) and US Forest Service (USFS) Forest Damage Aerial Detection Survey 1980-2009 (Bugs and Crud)** - Tree mortality due to disease, insects and animals. Used a 1999-2009 subset of the Survey data.
- Local knowledge and expertise of the NRCS Area specialists.

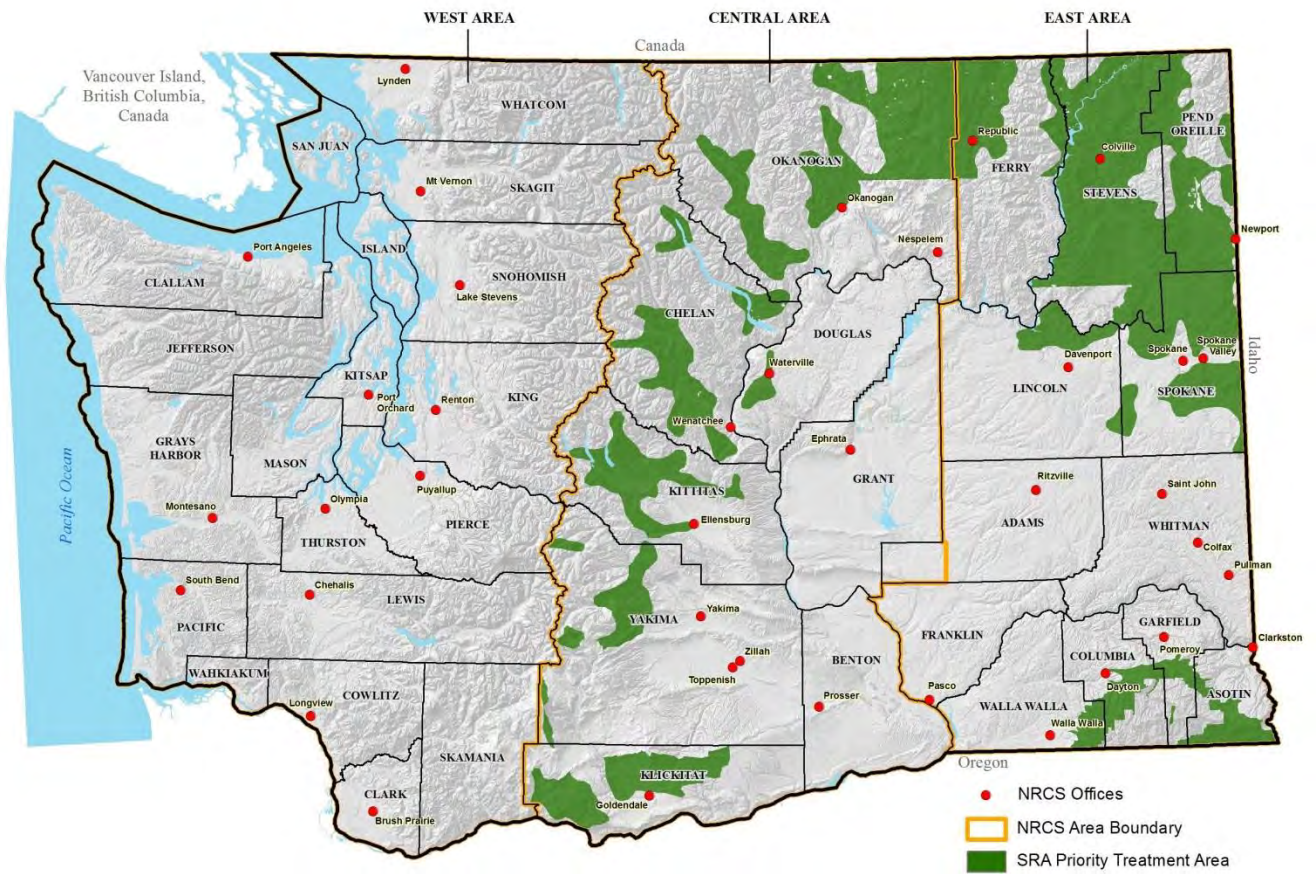


Fig. 18 - Forest – Excessive Plant Pest Pressure Resource Concern Priority Treatment Area Map

DEGRADED PLANT CONDITION - Undesirable plant productivity and health

Plant productivity, vigor, and/or quality should not negatively impact other resources or yield potential due to improper fertility, management, or plants not adapted to a site. As an example, this concern addresses pollinators, beneficial insects, wind erosion, and excess soil deposition that influence plant condition.

Washington State Priority Resource Concern	FOREST		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	3,179,000	1,563,000	204,000

Fig. 19 – SRA Acreage Table for Forest - Undesirable plant productivity and health

Forest – Undesirable Plant Productivity and Health -Resource Concern Indicator(s):

- **Washington State Department of Natural Resources (WDNR) and US Forest Service (USFS) Forest Damage Aerial Detection Survey 1980-2009 (Bugs and Crud)** - Tree mortality due to disease, insects and animals. Used a 1999-2009 subset of the Survey data.
- Local knowledge and expertise of the NRCS Area specialists.

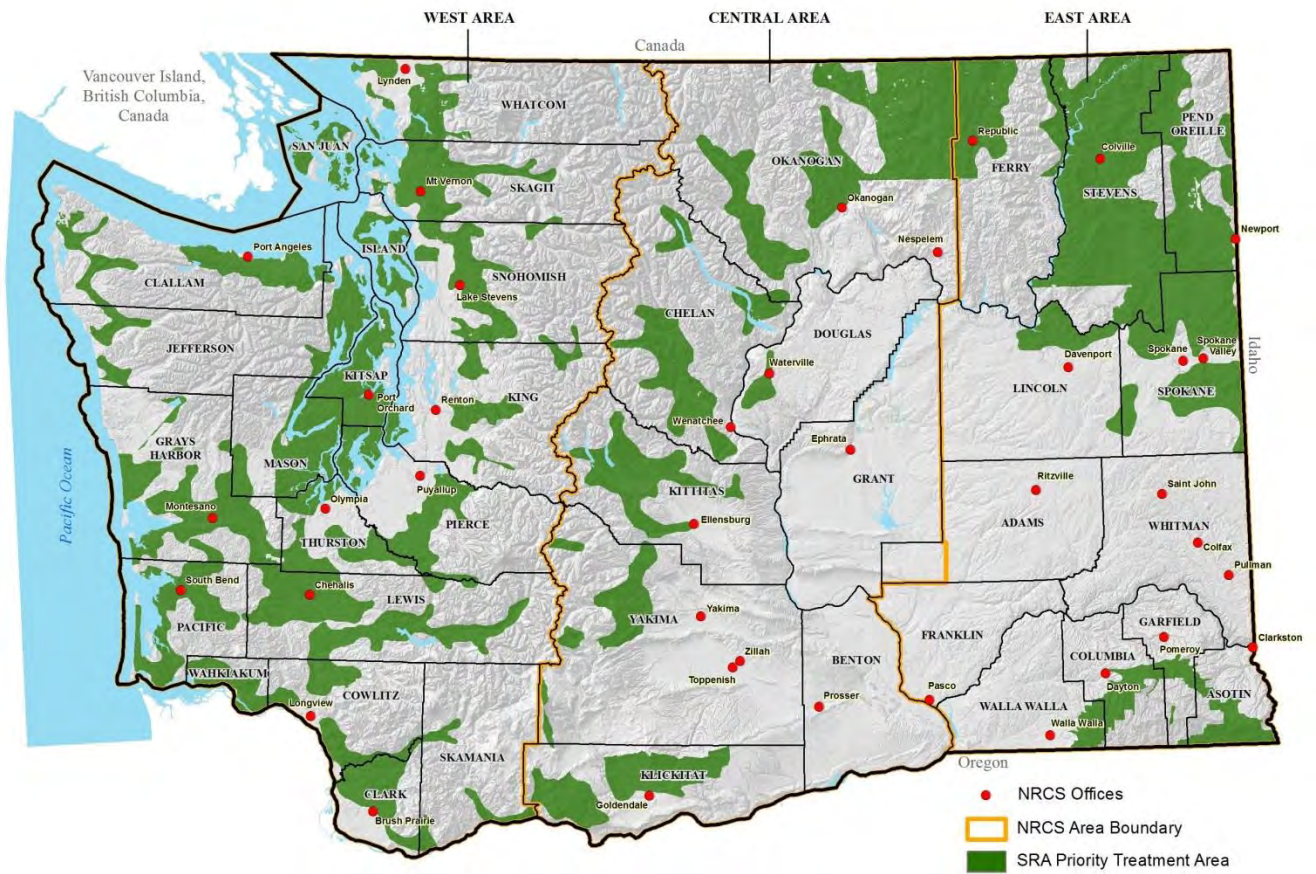


Fig. 20 - Forest – Undesirable Plant Productivity and Health Resource Concern Priority Treatment Area Map

DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation

This resource concern addresses the kinds and amounts of fuel loadings (plant biomass) that create wildfire hazards and thereby pose risks to human safety, structures, plants, animals, and air resources.

Washington State Priority Resource Concern	FOREST		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation	3,089,000	1,431,000	185,200

Fig. 21 – SRA Acreage Table for Forest - Wildfire hazard, excessive biomass accumulation

Forest – Wildfire Hazard, Excessive Biomass Accumulation - Resource Concern Indicator(s):

- **Resource Concern Indicator(s): US Forest Service (USFS) Fire Regime Condition Class (LANDFIRE)** – landscape scale fire, ecosystem, and fuel assessment.
- **USDA NRCS Water and Climate Center PRISM** - Average Annual Precipitation less than 60 inches per year.
- **Washington State Department of Natural Resources (WDNR)** – Wildland Urban Interface (WUI) areas.
- **Washington State Department of Natural Resources (WDNR)** – Washington Natural Heritage Program (WNHP) Existing Grasslands and Oak Woodlands 2005.
- **USDA NRCS** - Potential Native Prairie Zones and Core Prairie 2010.
- **West Area criteria:** Fire regime data, precipitation less than 60 inches, prairies zones and core prairie, WNHP grasslands and oaks, WUIs.
- Local knowledge and expertise of the NRCS Area specialists.

INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

Habitat is degraded when the quantity, quality, or connectivity of food, cover, space, shelter, and/or water is inadequate to meet requirements of identified fish, wildlife, and invertebrate species.

Washington State Priority Resource Concern	FOREST		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation	3,179,000	1,404,000	140,400

Fig. 23 – SRA Acreage Table for Forest - Habitat Degradation

Forest – Habitat Degradation - Resource Concern Indicator(s):

- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **West Area criteria:** All private forest.
- **Central Area criteria:** All private forest.
- **East Area criteria:** All private forest.
- Local knowledge and expertise of the NRCS Area specialists.

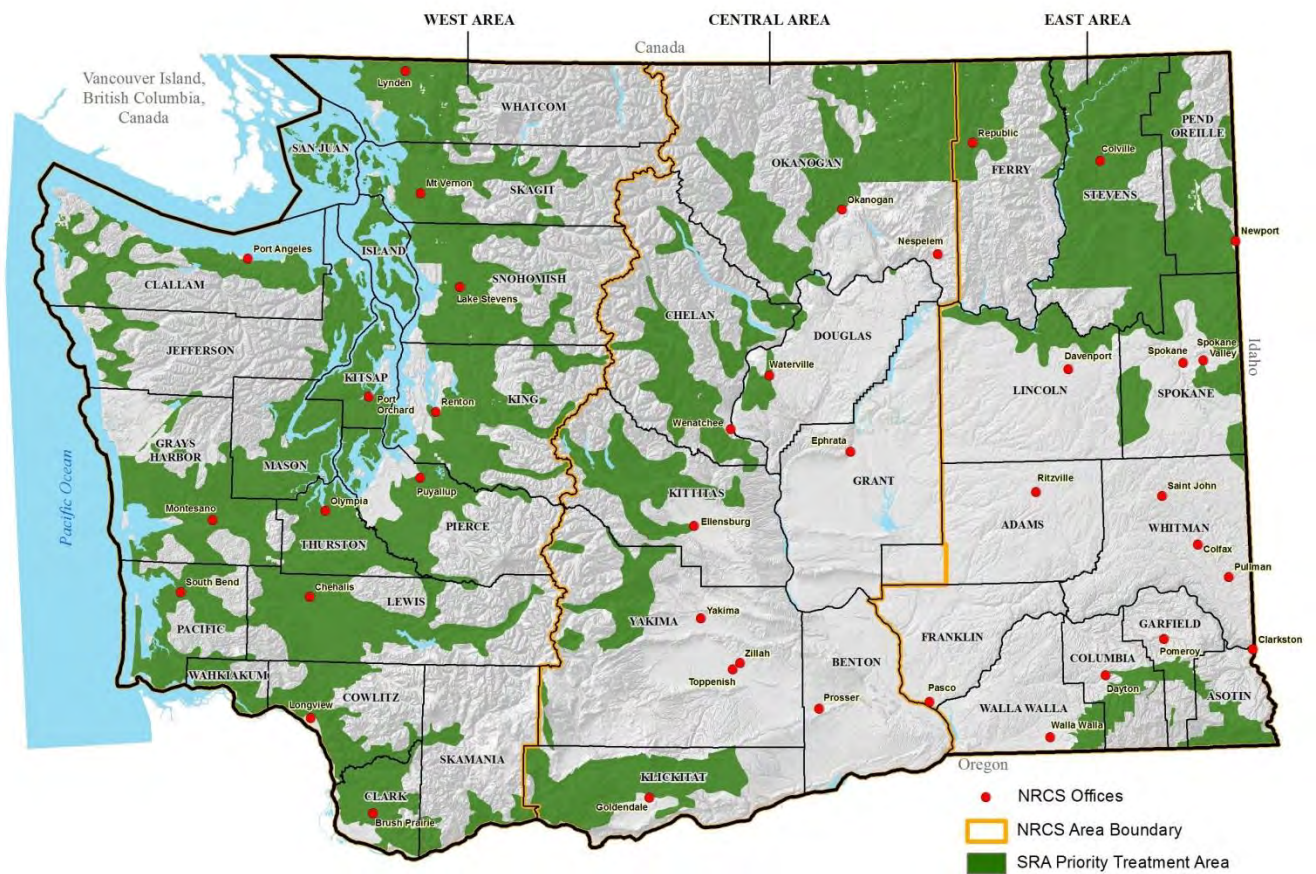


Fig. 24 - Forest – Habitat Degradation Resource Concern Priority Treatment Area Map

Tribal Resource Concerns on the Forest Landuse

The Priority Treatment Acres for each resource concern show the amount of acreage that all participating tribes will try to address on this particular landuse from 2013 to 2015.

NOTE: the acreages and treatment areas presented below include both NRCS forest and grazed forest landuses, increasing the acreage amount and mapped extent respectively. This is because NRCS forest-related practices can be utilized on both landuses.

Washington Tribal Priority Resource Concern	FOREST		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
SOIL EROSION - Sheet, rill, and wind erosion	2,516,400	1,053,900	351,100
SOIL EROSION -Excessive bank erosion from streams, shorelines, or water conveyance channels; also from forest roads	2,516,400	1,361,800	366,500
WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications	2,516,400	951,200	345,900
WATER QUALITY DEGRADATION - Excessive sediment in surface waters	2,516,400	1,002,600	348,600
WATER QUALITY DEGRADATION - Elevated water temperature	2,516,400	1,002,600	348,600
DEGRADED PLANT CONDITION - Excessive plant-pest pressure	2,516,400	1,700,700	391,000
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	2,516,400	1,700,700	391,000
DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation	2,516,400	1,700,700	391,000
INADEQUATE HABITAT FOR FISH AND WILDLIFE -Habitat degradation	2,516,400	1,700,700	391,000

Fig 25 – Tribal Resource Assessment Acreage Table for the Forest Landuse

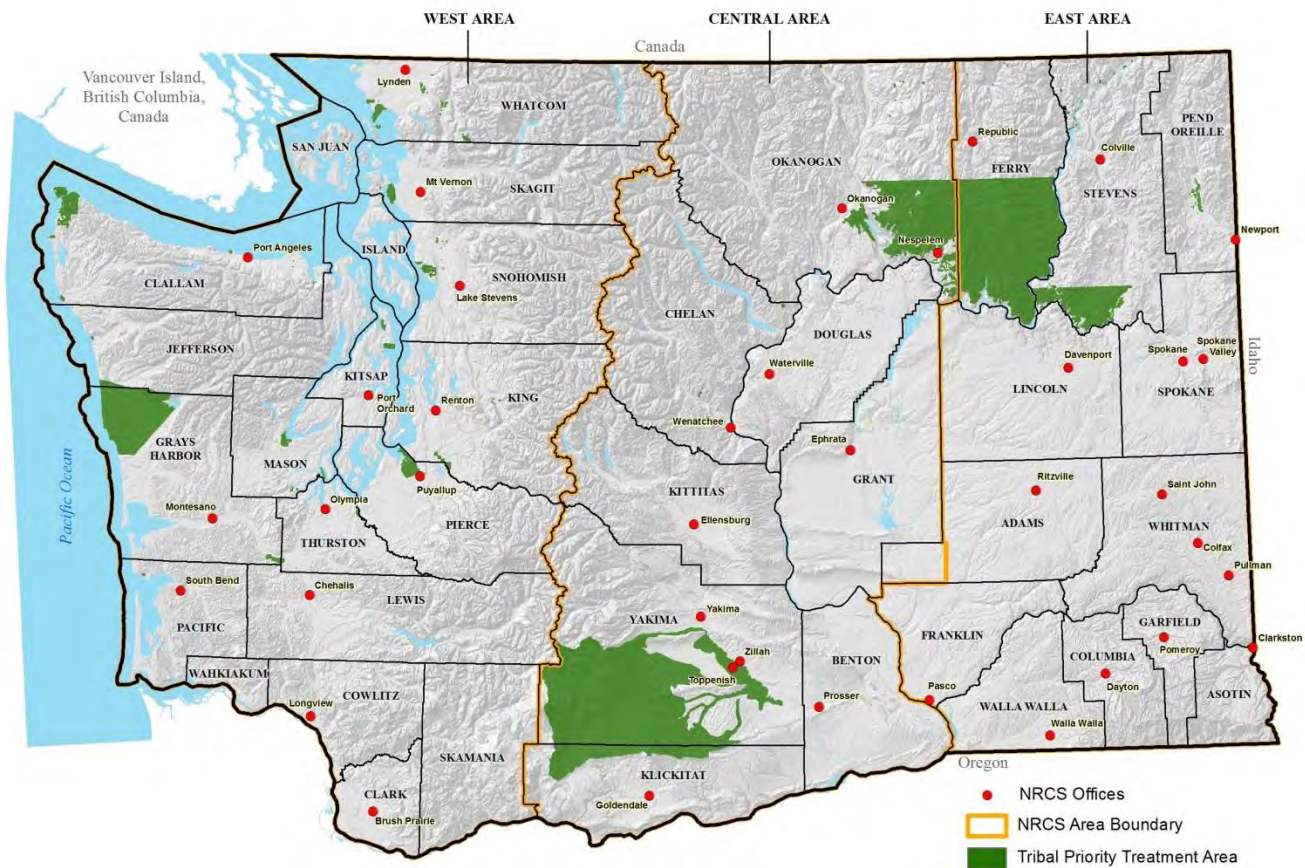


Fig. 26 – Tribal Forest Landuse Priority Treatment Area Map

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RANGE LANDUSE

Definition - Land used primarily for the production of grazing animals and wildlife. This includes native plant communities and those seeded to native or introduced species, or naturalized by introduced species, that are ecologically managed using range management principles.

List of the SRA Priority Resource Concerns on the Range Landuse

- DEGRADED PLANT CONDITION - Excessive plant pest pressure
- DEGRADED PLANT CONDITION - Undesirable plant productivity and health
- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

DEGRADED PLANT CONDITION - Excessive plant-pest pressure

This resource concern is related to the excessive pest damage to plants, including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. As an example, this concern addresses invasive plant, animal, and insect species.

Washington State Priority Resource Concern	RANGE		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
DEGRADED PLANT CONDITION - Excessive plant-pest pressure	4,147,800	3,431,900	624,000

Fig. 27 – SRA Acreage Table for Range - Excessive plant-pest pressure

Range – Excessive Plant Pest Pressure - Resource Concern Indicator(s):

- **NRCS Range Similarity Index** – This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species. Criteria for Priority Area: Rangeland Similarity Index of 25-50% (moderately impacted) and less than 25% (heavily impacted).
- **Central Area criteria** – All rangeland that adjoins and buffers state or federally owned lands; Range Similarity Index below 75%.
- **East Area criteria** – Range Similarity Index below 50%.

DEGRADED PLANT CONDITION - Undesirable plant productivity and health

Plant productivity, vigor, and/or quality should not negatively impact other resources or yield potential due to improper fertility, management, or plants not adapted to a site. As an example, this concern addresses pollinators, beneficial insects, wind erosion, and excess soil deposition that influence plant condition.

Washington State Priority Resource Concern	RANGE		
	Potential At- Risk Acres	Acres Needing Treatment	Priority Treatment Acres
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	4,147,800	3,330,700	563,200

Fig. 29 – SRA Acreage Table for Range - Undesirable plant productivity and health

Range – Undesirable Plant Productivity and Health -Resource Concern Indicator(s):

- **NRCS Range Similarity Index** – This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species. Criteria for Priority Area: Rangeland Similarity Index of 25-50% (moderately impacted) and less than 25% (heavily impacted).
- **Central Area criteria** – All rangeland that adjoins and buffers state or federally owned lands; Range Similarity Index below 75%.
- **East Area criteria** – Range Similarity Index below 50%.

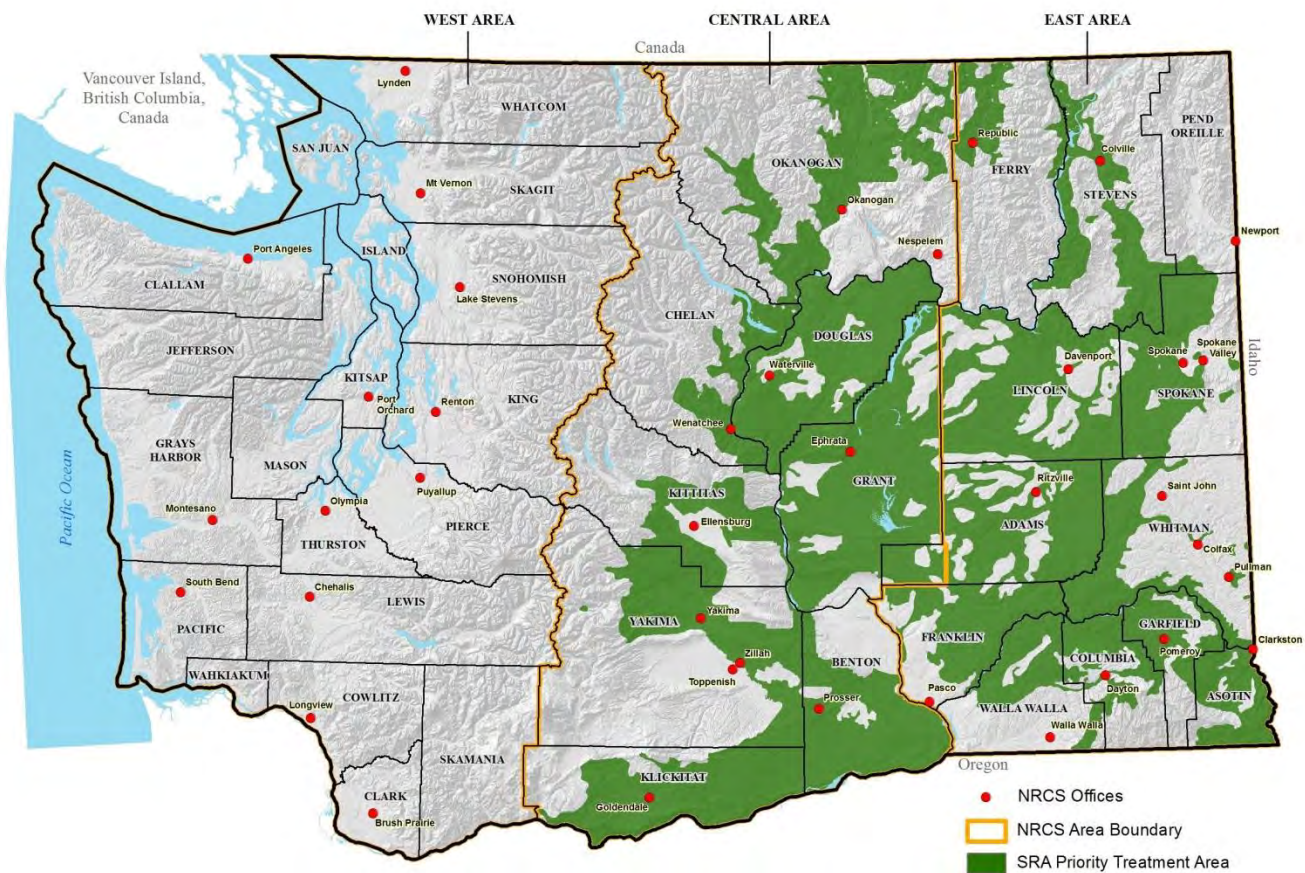


Fig. 30 - Range – Undesirable Plant Productivity and Health Resource Concern Priority Treatment Area Map

INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

Habitat is degraded when the quantity, quality, or connectivity of food, cover, space, shelter, and/or water is inadequate to meet requirements of identified fish, wildlife, and invertebrate species.

Washington State Priority Resource Concern	RANGE		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation	4,147,800	3,431,900	624,000

Fig. 31 – SRA Acreage Table for Range - Habitat Degradation

Range – Habitat Degradation -Resource Concern Indicator(s):

- **NRCS Range Similarity Index** – This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species. Criteria for Priority Area: Rangeland Similarity Index of 25-50% (moderately impacted) and less than 25% (heavily impacted).
- **USDA Natural Resources Conservation Service (NRCS)** - 2013 Sage Grouse Initiative (SGI) Priority Areas.
- **Central Area criteria** – All rangeland that adjoins and buffers state or federally owned lands (for fish and wildlife); Range Similarity Index below 75%; Sage Grouse Initiative Priority Areas.
- **East Area criteria** – Sage Grouse Initiative Priority Areas.

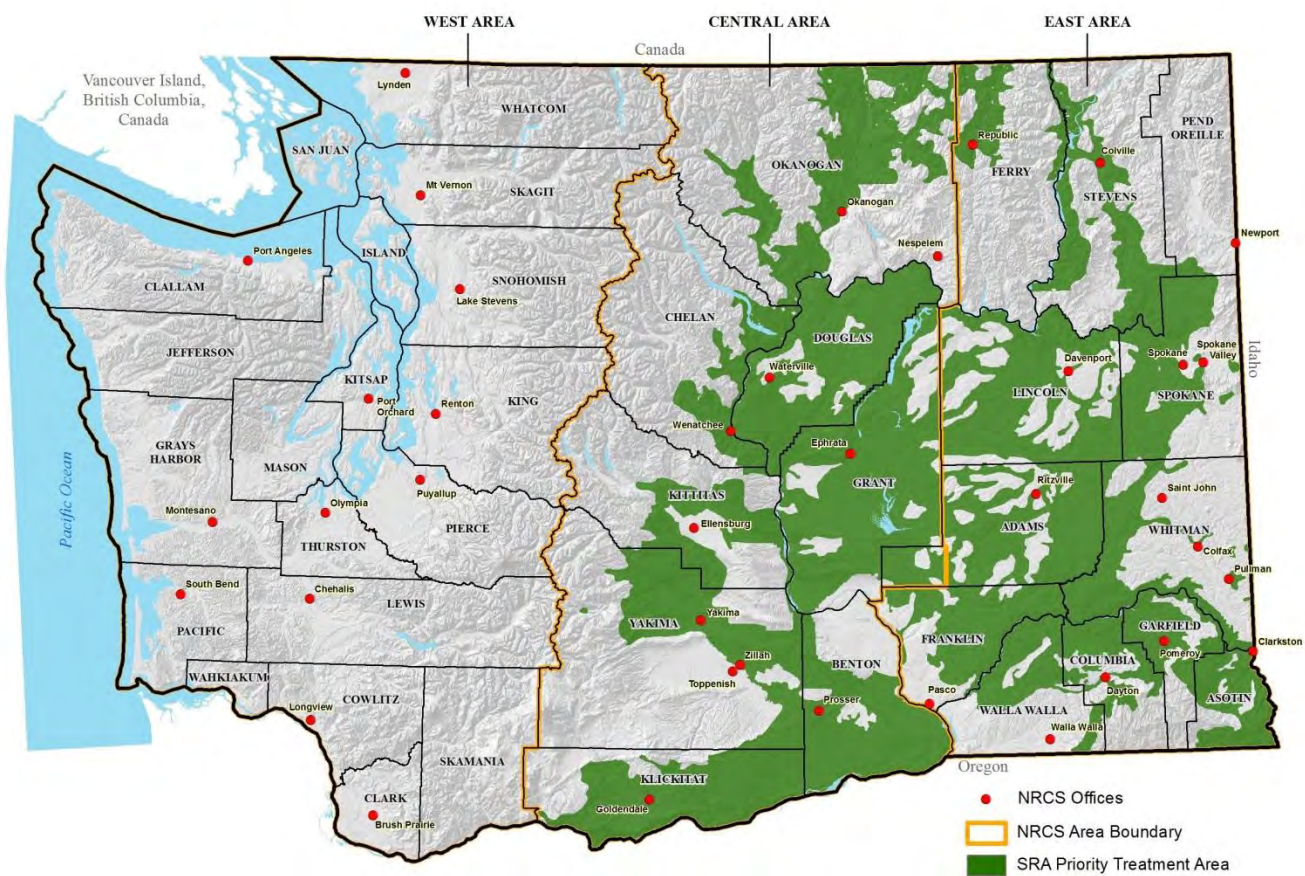


Fig. 32 - Range – Habitat Degradation Resource Concern Priority Treatment Area Map

Tribal Resource Concerns on the Range Landuse

The Priority Treatment Acres for each resource concern show the amount of acreage that all participating tribes will try to address on this particular landuse from 2013 to 2015.

It should be noted that that acreages and treatment areas presented below include both the NRCS range and grazed forest landuses, increasing the acreage amount and mapped extent respectively. This is because NRCS range-related practices can be utilized on both landuses.

Washington Tribal Priority Resource Concern	RANGE		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
SOIL EROSION - Sheet, rill, and wind erosion	2,367,900	863,700	285,000
SOIL EROSION -Excessive bank erosion from streams, shorelines, or water conveyance channels; also from forest roads	2,367,900	1,167,300	315,400
WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater	2,367,900	1,040,900	302,700
WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications	2,367,900	681,600	266,800
WATER QUALITY DEGRADATION - Excessive sediment in surface waters	2,367,900	724,600	271,100
WATER QUALITY DEGRADATION - Elevated water temperature	2,367,900	762,600	274,900
DEGRADED PLANT CONDITION - Excessive plant-pest pressure	2,367,900	1,673,300	365,900
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	2,367,900	1,774,500	426,700
DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation	2,367,900	1,470,900	345,700
INADEQUATE HABITAT FOR FISH AND WILDLIFE -Habitat degradation	2,367,900	1,673,300	365,900

Fig. 33 – Tribal Resource Assessment Acreage Table for the Range Landuse

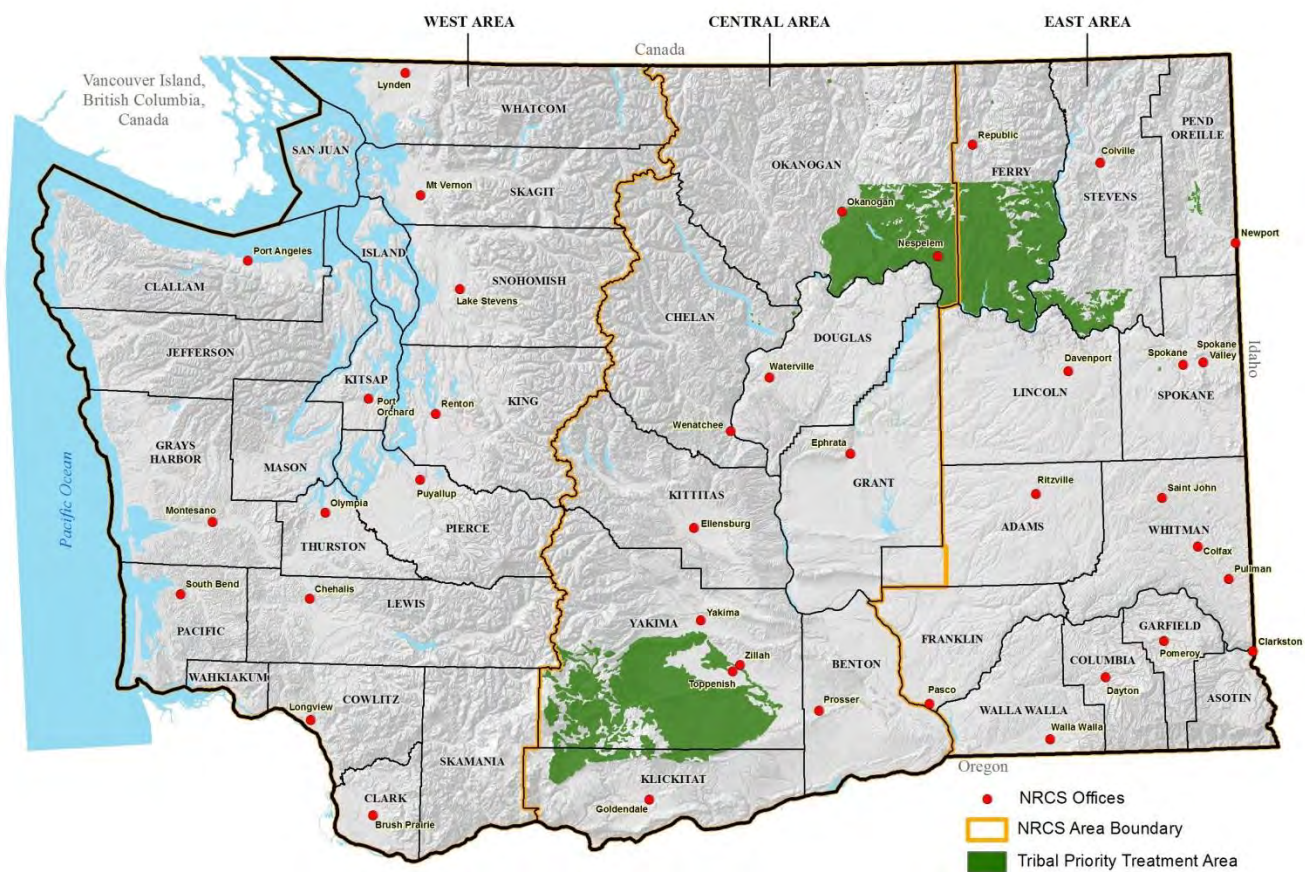


Fig. 34 – Tribal Range Landuse Priority Treatment Area Map

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PASTURE LANDUSE

Definition - Lands composed of introduced or domesticated native forage species that is used primarily for the production of domestic livestock. They receive periodic renovation and/or cultural treatments, such as tillage, fertilization, mowing, weed control, and may be irrigated. They are not in rotation with crops.

List of the SRA Priority Resource Concerns on the Pasture Landuse

- INSUFFICIENT WATER - Inefficient use of irrigation water
- WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters
- DEGRADED PLANT CONDITION - Undesirable plant productivity and health
- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

EXCESS/INSUFFICIENT WATER - Inefficient use of irrigation Water

Inefficient use of irrigation water impacts on- and off-site water quantity and quality. Irrigation systems and water management practices can waste water and negatively affect farm profitability.

Washington State Priority Resource Concern	PASTURE		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
INSUFFICIENT WATER - Inefficient use of irrigation water	120,400	74,650	33,400

Fig. 35 – SRA Acreage Table for Pasture - Inefficient use of irrigation water

Pasture – Inefficient Use of Irrigation Water - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Pasture type and hay/silage group subsets.
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **Eat Area criteria:** All pasture in the Northeast Team.
- **Central Area criteria:** irrigated pasture dependent on stream or creek water (the Okanogan River, upper and lower Yakima basin, Methow River, Wenatchee River, Entiat River and all irrigated pasture in Kittitas County).

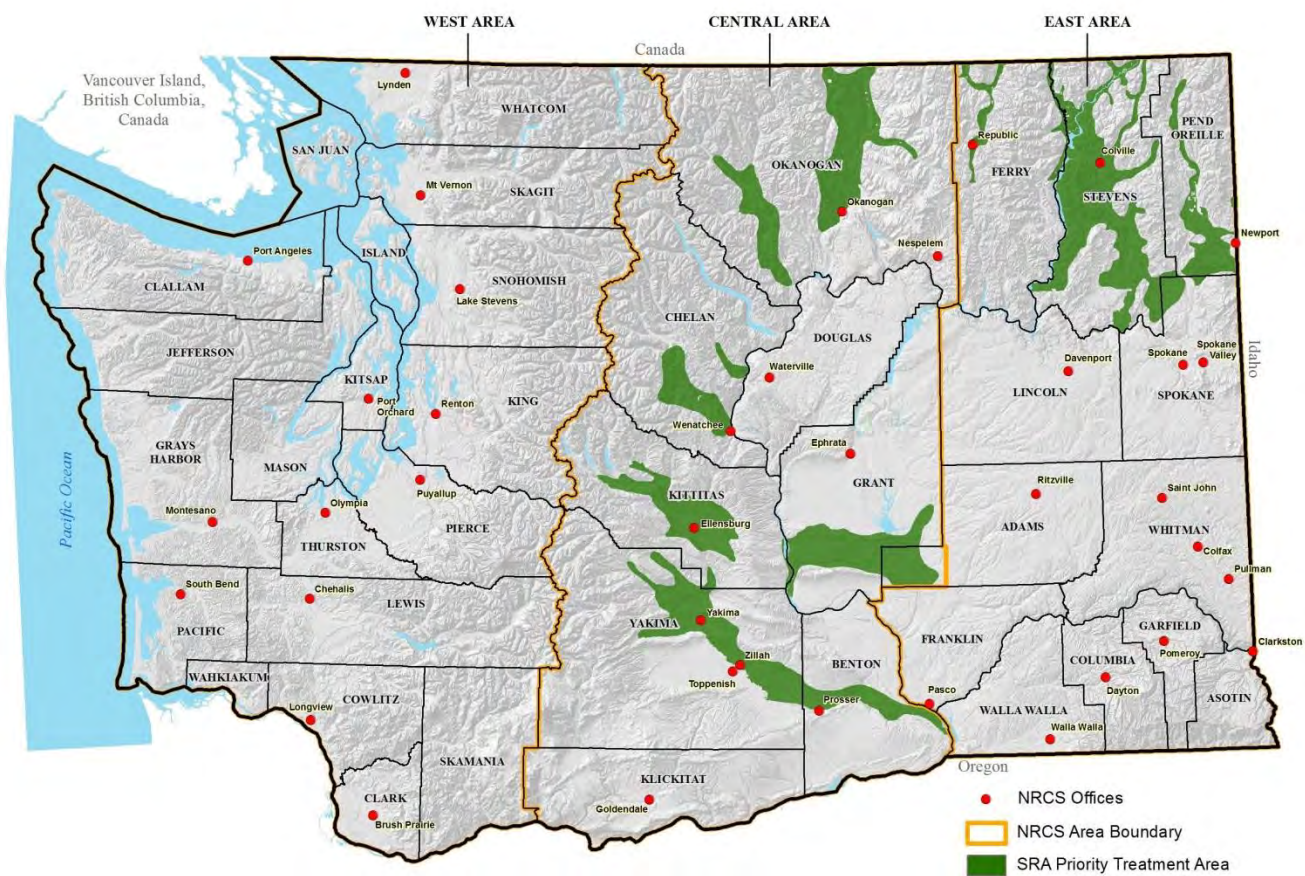


Fig. 36 - Pasture – Inefficient Use of Irrigation Water Resource Concern Priority Treatment Area Map

WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater

Nutrients (organics and inorganics) are a resource concern when transported to receiving waters through surface runoff, leaching into shallow ground waters, or both in quantities that degrade water quality and limit use for intended purposes.

Washington State Priority Resource Concern	PASTURE		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater	532,400	257,400	26,100

Fig. 37 – SRA Acreage Table for Pasture - Excess nutrients in surface and groundwater

Pasture – Excess Nutrients in Surface and Ground Waters -Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Pasture type and hay/silage group subsets.
- **US Geological Survey (USGS) Distribution of Elevated Nitrate Concentrations in Ground Water in Washington State 2008** – Nitrate concentration probability areas.
- **Washington State Department of Ecology (WDOE) Dairy Farms 2003** – locations of dairy farms in Washington State that are holders of a Milk Producers License issued by Washington State's Department of Agriculture.
- **Washington State Department of Agriculture (WSDA) Dairies 2011** – locations of dairy farms in Washington State.
- **Washington State Department of Agriculture (WSDA) Dairies 2011** – locations of dairy farms in Washington State.
- **East Area criteria:** All pasture in the Northeast and Snake River Teams.
- Local knowledge and expertise of the NRCS Area specialists.

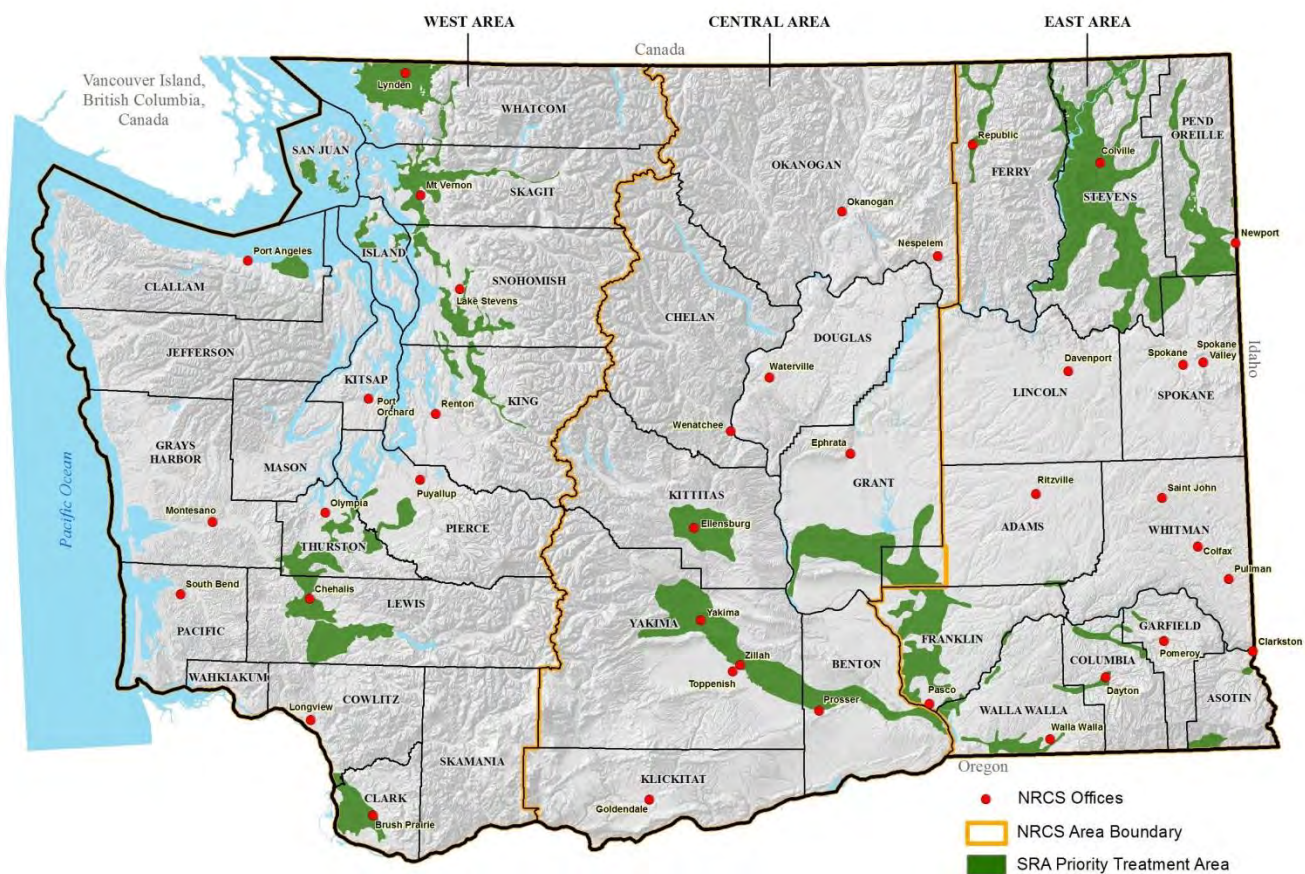


Fig. 38 - Pasture – Excess Nutrients in Surface and Ground Waters Resource Concern Priority Treatment Area Map

DEGRADED PLANT CONDITION - Undesirable plant productivity and health

Plant productivity, vigor, and/or quality should not negatively impact other resources or yield potential due to improper fertility, management, or plants not adapted to a site. As an example, this concern addresses pollinators, beneficial insects, wind erosion, and excess soil deposition that influence plant condition.

Washington State Priority Resource Concern	PASTURE		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	532,400	354,750	19,500

Fig. 39 – SRA Acreage Table for Pasture - Undesirable plant productivity and health

Pasture – Undesirable Plant Productivity and Health Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Pasture type and hay/silage group subsets.
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **East Area criteria:** All pasture.
- **Central Area criteria:** All pasture.
- **West Area criteria:** All pasture.

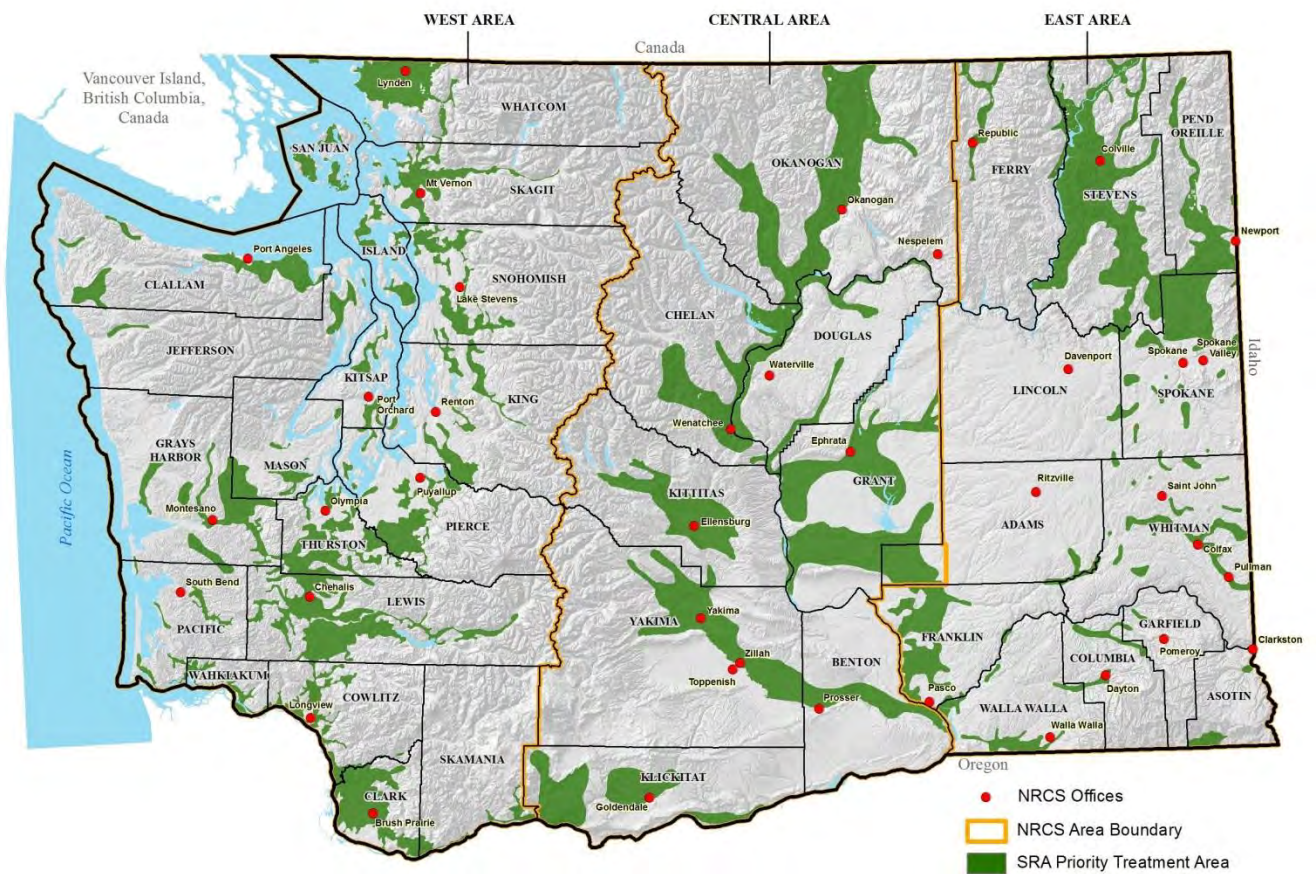


Fig. 40 - Pasture – Undesirable Plant Productivity and Health Resource Concern Priority Treatment Area Map

INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

Habitat is degraded when the quantity, quality, or connectivity of food, cover, space, shelter, and/or water is inadequate to meet requirements of identified fish, wildlife, and invertebrate species.

Washington State Priority Resource Concern	PASTURE		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation	532,400	251,150	10,975

Fig. 41 – SRA Acreage Table for Pasture - Habitat Degradation

Pasture – Habitat Degradation - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Pasture type and hay/silage group subsets.
- **Farm Service Agency (FSA) Conservation Reserve Enhancement Program (CREP) Streams** - spatial segments of fish bearing streams eligible for conservation enhancement.
- **Washington State Department of Fish and Wildlife (WDFW)** – Salmonid Stock Inventory (SASI) streams.
- **East Area criteria:** Pasture associated with SASI and CREP streams.
- **Central Area criteria:** All pasture.
- **West Area criteria:** All pasture.
- Local knowledge and expertise of the NRCS Area specialists.

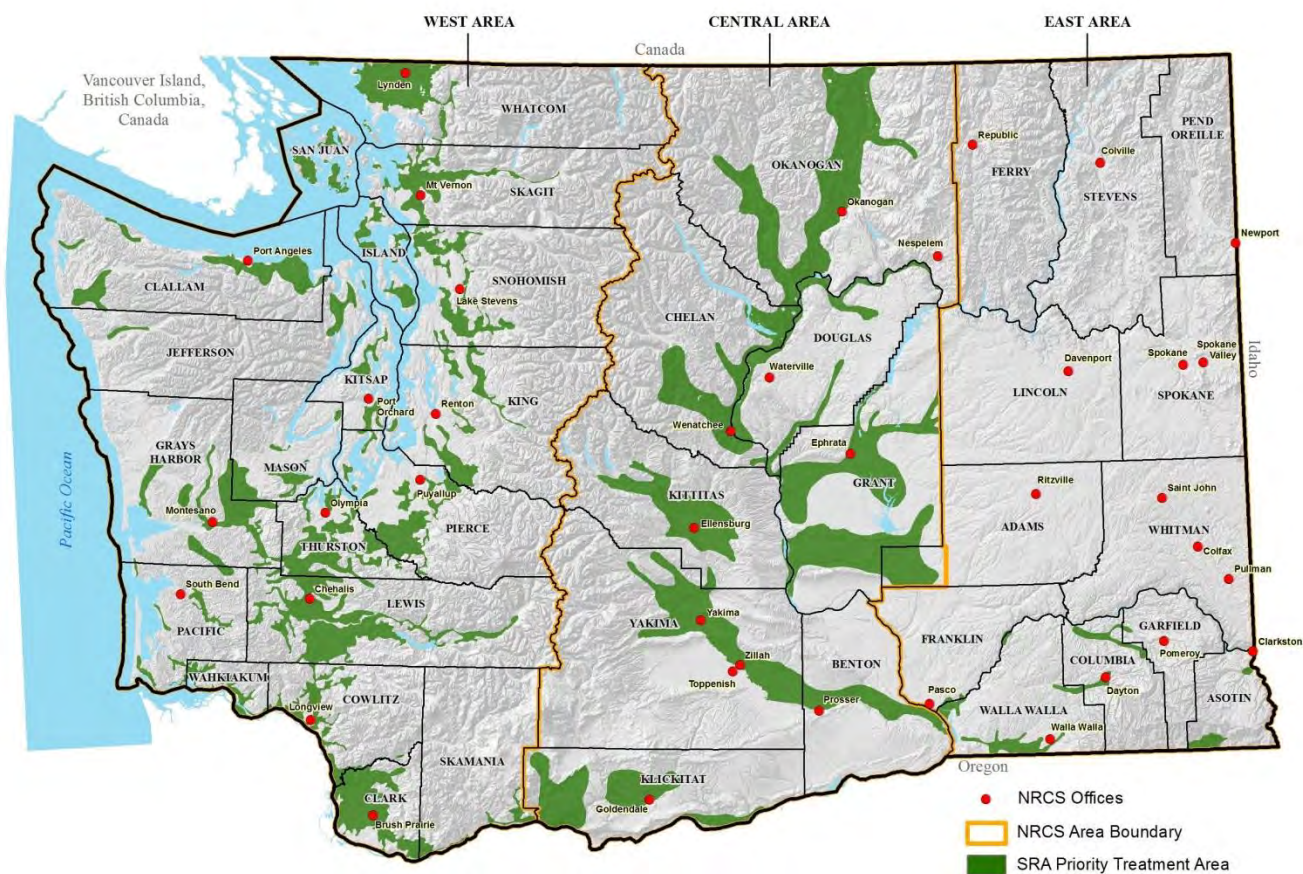


Fig. 42 - Pasture – Habitat Degradation Resource Concern Priority Treatment Area Map

Tribal Resource Concerns on the Pasture Landuse

The Priority Treatment Acres for each resource concern show the amount of acreage that all participating tribes will try to address on this particular landuse from 2013 to 2015.

Washington Tribal Priority Resource Concern	PASTURE		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
SOIL EROSION - Sheet, rill, and wind erosion	650,400	206,400	71,500
SOIL EROSION -Excessive bank erosion from streams, shorelines, or water conveyance channels; also from forest roads	650,400	316,800	82,600
INSUFFICIENT WATER -Inefficient use of irrigation water	650,400	537,700	104,700
WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater	650,400	188,000	66,700
WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications	650,400	173,200	68,200
WATER QUALITY DEGRADATION - Excessive sediment in surface waters	650,400	188,000	69,700
WATER QUALITY DEGRADATION - Elevated water temperature	650,400	188,000	69,700
DEGRADED PLANT CONDITION - Excessive plant-pest pressure	650,400	279,400	78,700
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	650,400	537,700	104,700
DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation	650,400	187,400	69,400
INADEQUATE HABITAT FOR FISH AND WILDLIFE -Habitat degradation	650,400	537,100	104,400

Fig. 43 – Tribal Resource Assessment Acreage Table for the Pasture Landuse

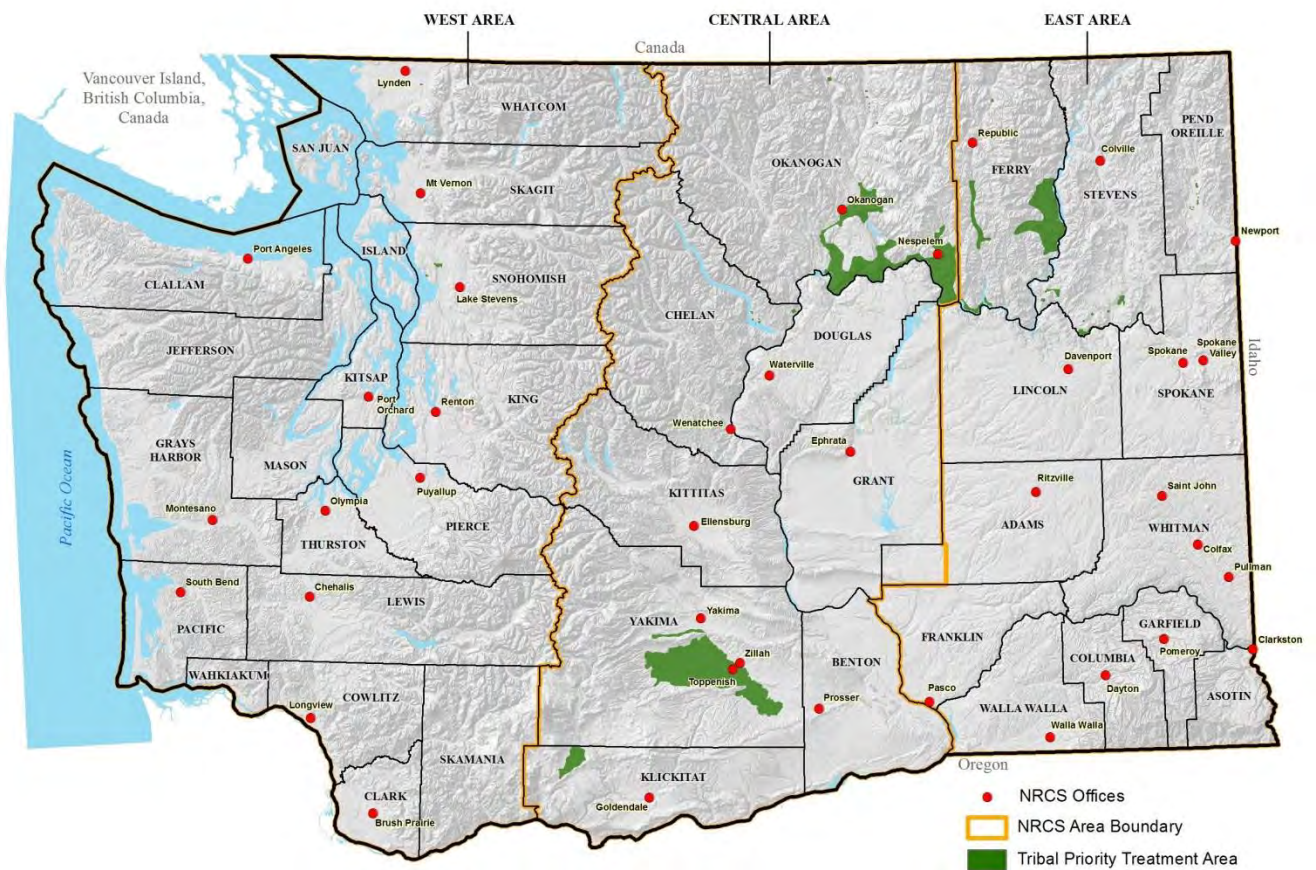


Fig. 44 – Tribal Pasture Landuse Priority Treatment Area Map

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OTHER ASSOCIATED AG LANDUSE

Definition - Land associated with farms and ranches that are not purposefully managed for food, forage or fiber and are typically associated with nearby production and/or conservation lands. Shellfish production areas in the tidal and intertidal areas are also included in this landuse description.

This could include incidental areas such as: idle center pivot corners, odd areas, draws, hedgerows, riparian areas, field edges, seasonal and permanent wetlands, rocky outcrop, and other similar areas.

It also includes the headquarters area used for facilities and supporting infrastructure where farming, forestry, animal husbandry and ranching activities are often initiated. This may include dwellings, equipment storage plus farm input and output storage and handling facilities.

In addition, this includes land dedicated to the facilitation and production of high intensity animal agriculture in a confinement facility (Includes areas such as milking barns, holding lots, heavy use areas, waste treatment and storage facilities, composting facilities, feed mixing facilities, poultry houses, farrowing houses, fish production facilities and other equipment or feed storage facilities essential to the production of confined animals).

This may include land enrolled in USDA easement programs that is not used for the production of food, forage, or fiber.

List of the SRA Priority Resource Concerns on the Other Associated Ag Landuse

- WATER QUALITY DEGRADATION - Excess nutrients in surface and ground waters
- WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications
- WATER QUALITY DEGRADATION - Excessive sediment in surface waters
- DEGRADED PLANT CONDITION - Excessive plant pest pressure
- INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater

Nutrients (organics and inorganics) are a resource concern when transported to receiving waters through surface runoff, leaching into shallow ground waters, or both in quantities that degrade water quality and limit use for intended purposes.

Washington State Priority Resource Concern	OTHER ASSOCIATED AG		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater	142,000	71,000	29,550

Fig. 45 – SRA Acreage Table for Other Associated Ag - Excess nutrients in surface and groundwater

Other Associated Ag Land – Excess Nutrients in Surface and Ground Waters - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands.**
- **US Geological Survey (USGS) Distribution of Elevated Nitrate Concentrations in Ground Water in Washington State 2008** – Nitrate concentration probability areas.
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **East Area criteria:** Cropland associated with a high nitrate probability.
- **West Area criteria:** All pasture lands.

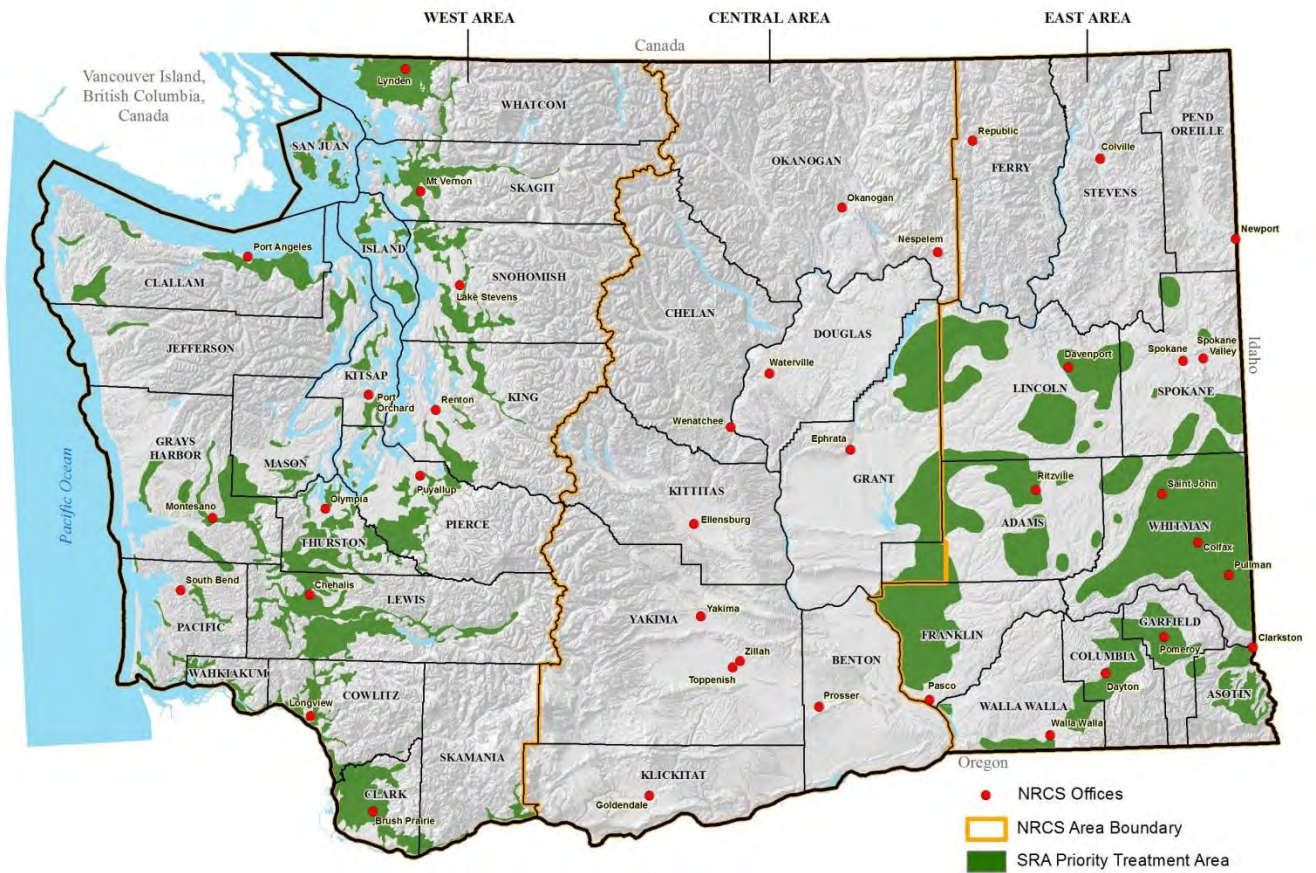


Fig. 46 - Other Associated Ag Land – Excess Nutrients in Surface and Ground Waters Resource Concern Priority Treatment Area Map

WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications

This resource concern relates to the pathogens, pharmaceuticals, and other chemicals that are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes. It also includes the offsite transport of leachate and runoff from silage, compost, or other organic materials.

Washington State Priority Resource Concern	OTHER ASSOCIATED AG		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications	156,440	43,600	3,950

Fig. 47 – SRA Acreage Table for Other Associated Ag - Excess pathogens and chemicals from manure, biosolids or compost applications

Other Associated Ag Land – Excess Pathogens and Chemicals from Manure, Biosolids or Compost Applications - Resource Concern Indicator(s):

- **Washington State Department of Ecology (WDOE) Dairy Farms 2003** – locations of dairy farms in Washington State that are holders of a Milk Producers License issued by Washington State's Department of Agriculture.
- **Washington State Department of Agriculture (WSDA) Dairies 2011** – locations of dairy farms in Washington State.
- **Washington State Department of Fish and Wildlife (WDFW)** – Salmonid Stock Inventory (SASI) streams.
- **USGS National Hydrography Dataset (NHD)** – Perennial streams, Crab Creek and Moses Lake.
- **East Area criteria:** Dairies and livestock feeding operations, SASI streams.
- **Central Area criteria:** All dairies.
- **West Area criteria:** All dairies.
- Local knowledge and expertise of the NRCS Area specialists.

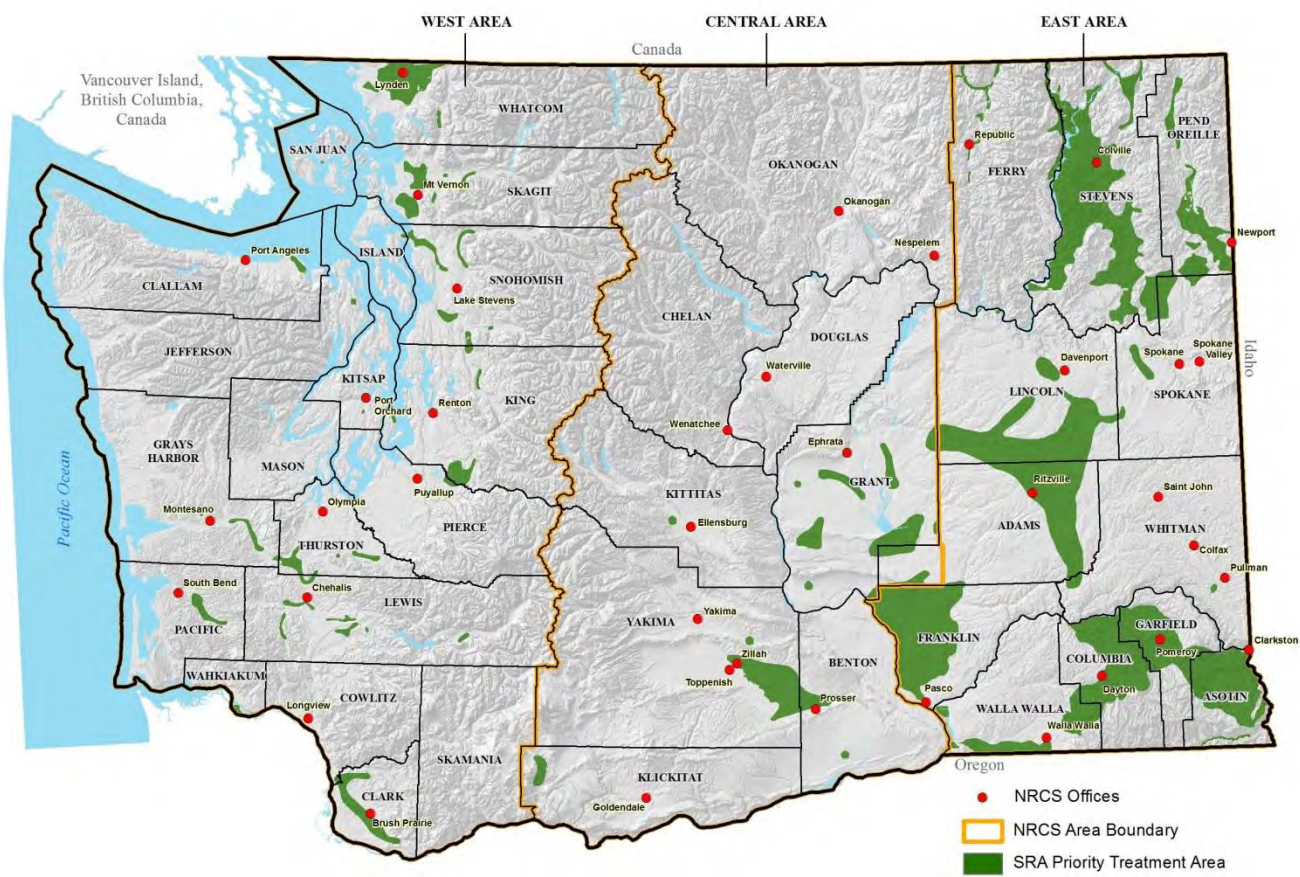


Fig. 48 - Other Associated Ag Land – Excess Pathogens and Chemicals from Manure, Biosolids or Compost Applications Resource Concern Priority Treatment Area Map

WATER QUALITY DEGRADATION - Excessive sediment in surface waters

This resource concern is related to the off-site transport of sediment from sheet, rill, gully, and wind erosion into surface water that threatens to degrade surface water quality and limit use for intended purposes. When sediment enters the water column it increases turbidity and carries pollutants such as nutrients and pesticides.

Washington State Priority Resource Concern	OTHER ASSOCIATED AG		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
WATER QUALITY DEGRADATION - Excessive sediment in surface waters	35,000	17,500	1,300

Fig. 49 – SRA Acreage Table for Other Associated Ag - Excessive sediment in surface waters

Other Associated Ag Land – Excessive Sediment in Surface Waters - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** - Various cropland type subsets in combination with, or proximity to, other natural features or resource concern indicators.
- **West Area criteria:** All pasture lands.
- **Central Area criteria:** All cropland.
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.

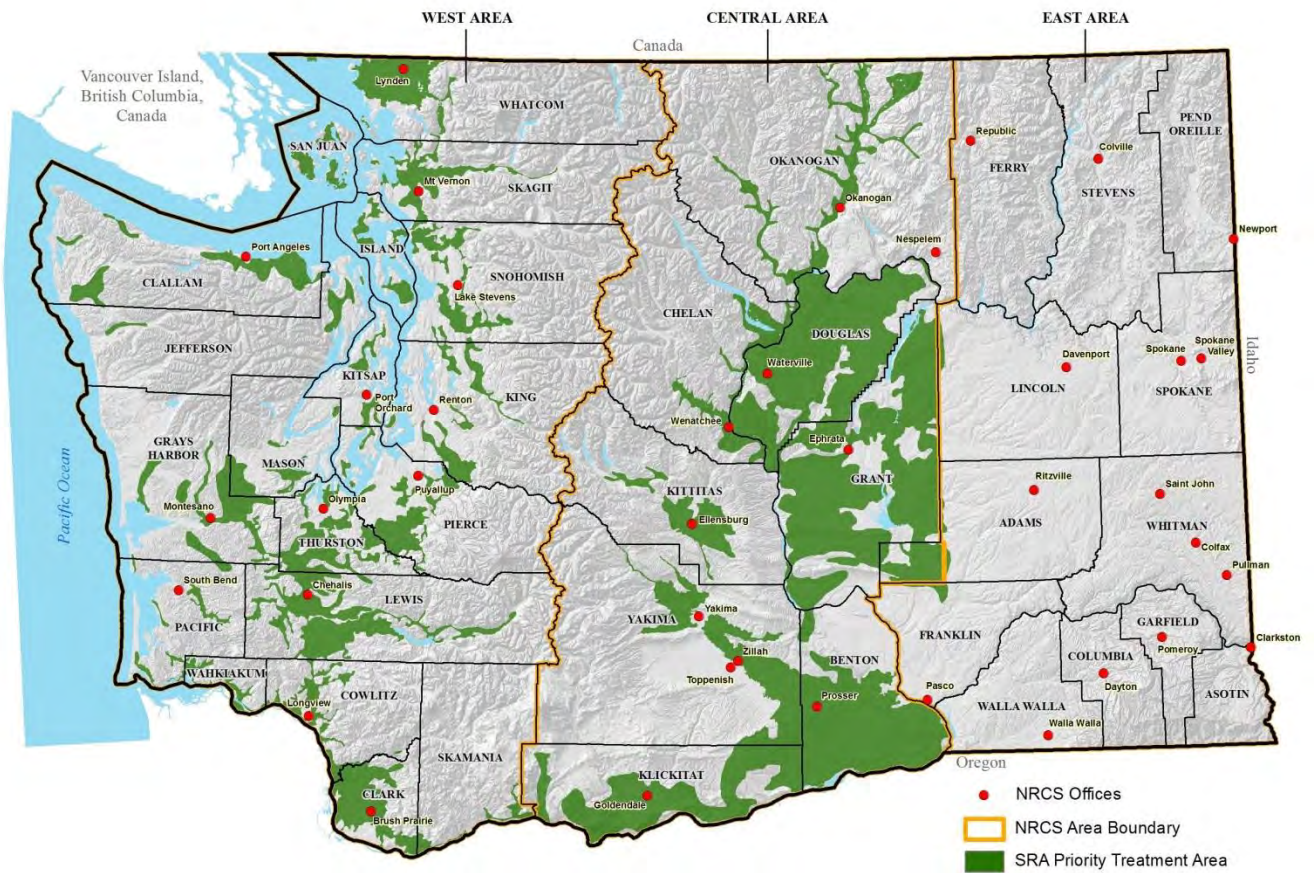


Fig. 50 - Other Associated Ag Land – Excessive Sediment in Surface Waters
Resource Concern Priority Treatment Area Map

DEGRADED PLANT CONDITION - Excessive plant-pest pressure

This resource concern is related to the excessive pest damage to plants, including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. As an example, this concern addresses invasive plant, animal, and insect species.

Washington State Priority Resource Concern	OTHER ASSOCIATED AG		
	Potential At- Risk Acres	Acres Needing Treatment	Priority Treatment Acres
DEGRADED PLANT CONDITION - Excessive plant-pest pressure	297,400	145,250	13,230

Fig. 51 – SRA Acreage Table for Other Associated Ag - Excessive plant-pest pressure

Other Associated Ag Land – Excessive Plant Pest Pressure - Resource Concern Indicator(s):

- **Washington State Department of Agriculture (WSDA) Croplands Subsets** - Various cropland type subsets in combination with, or proximity to, other natural features or resource concern indicators.
- **West Area criteria:** All pasture lands.
- **Central Area criteria:** WSDA Center Pivot Irrigation intersected with Farm Service Agency Common Land Unit (CLU) fields to model idle center pivot corners.
- **East Area criteria:** Invasive plant species on feedlots in the Palouse Team.
- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.

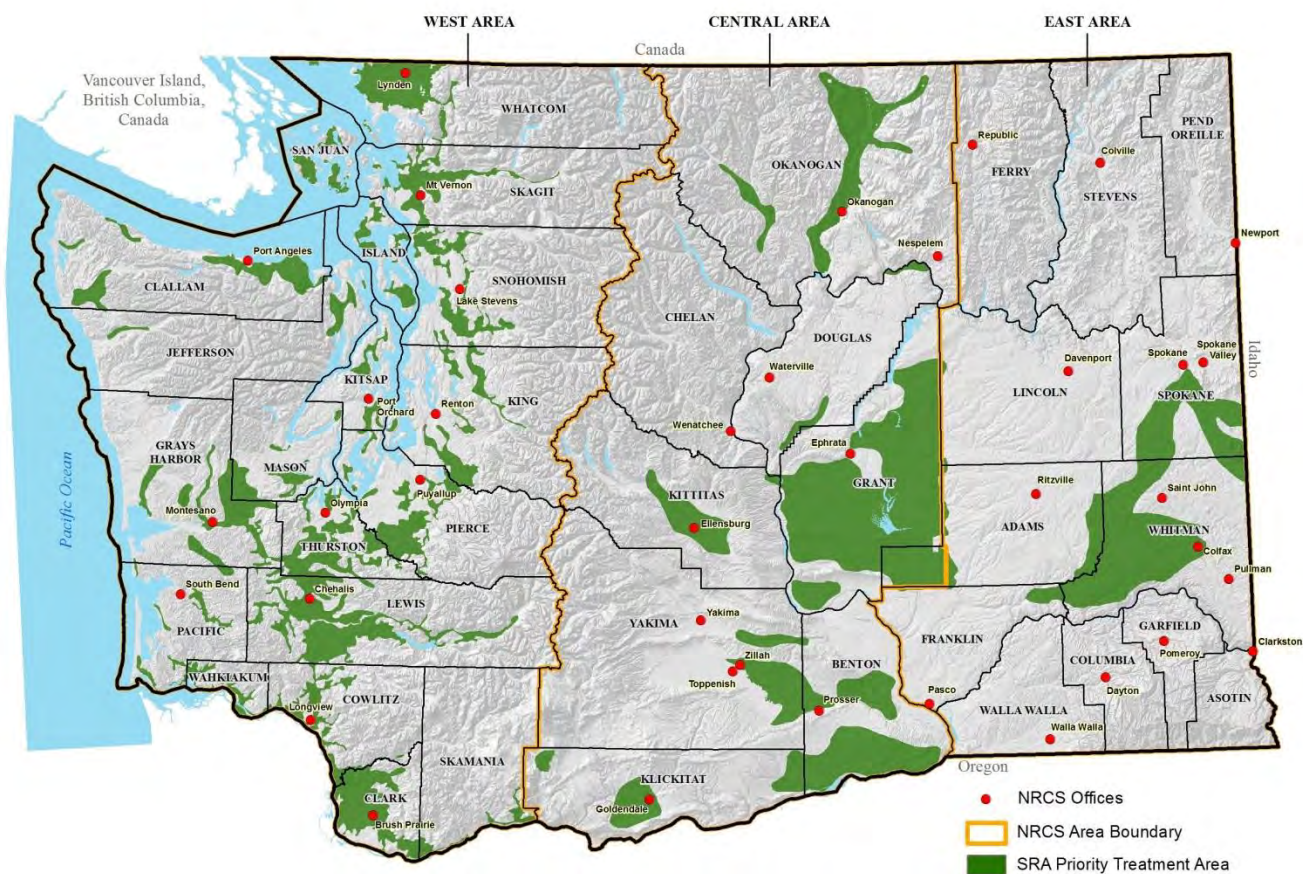


Fig. 52 - Other Associated Ag Land – Excessive Plant Pest Pressure Priority Treatment Area Map

DEGRADED PLANT CONDITION - Undesirable plant productivity and health

Plant productivity, vigor, and/or quality should not negatively impact other resources or yield potential due to improper fertility, management, or plants not adapted to a site. As an example, this concern addresses pollinators, beneficial insects, wind erosion, and excess soil deposition that influence plant condition.

Washington State Priority Resource Concern	OTHER ASSOCIATED AG		
	Potential At- Risk Acres	Acres Needing Treatment	Priority Treatment Acres
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	15,950	1,595	160

Fig. 53 – SRA Acreage Table for Other Associated Ag - Undesirable plant productivity and health

Other Associated Ag Land - Undesirable plant productivity and health - Resource Concern Indicator(s):

- Where no geospatial indicator datasets existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the Priority Area.
- **East Area criteria:** Degraded riparian areas and other areas of poor condition in the West Palouse Team.

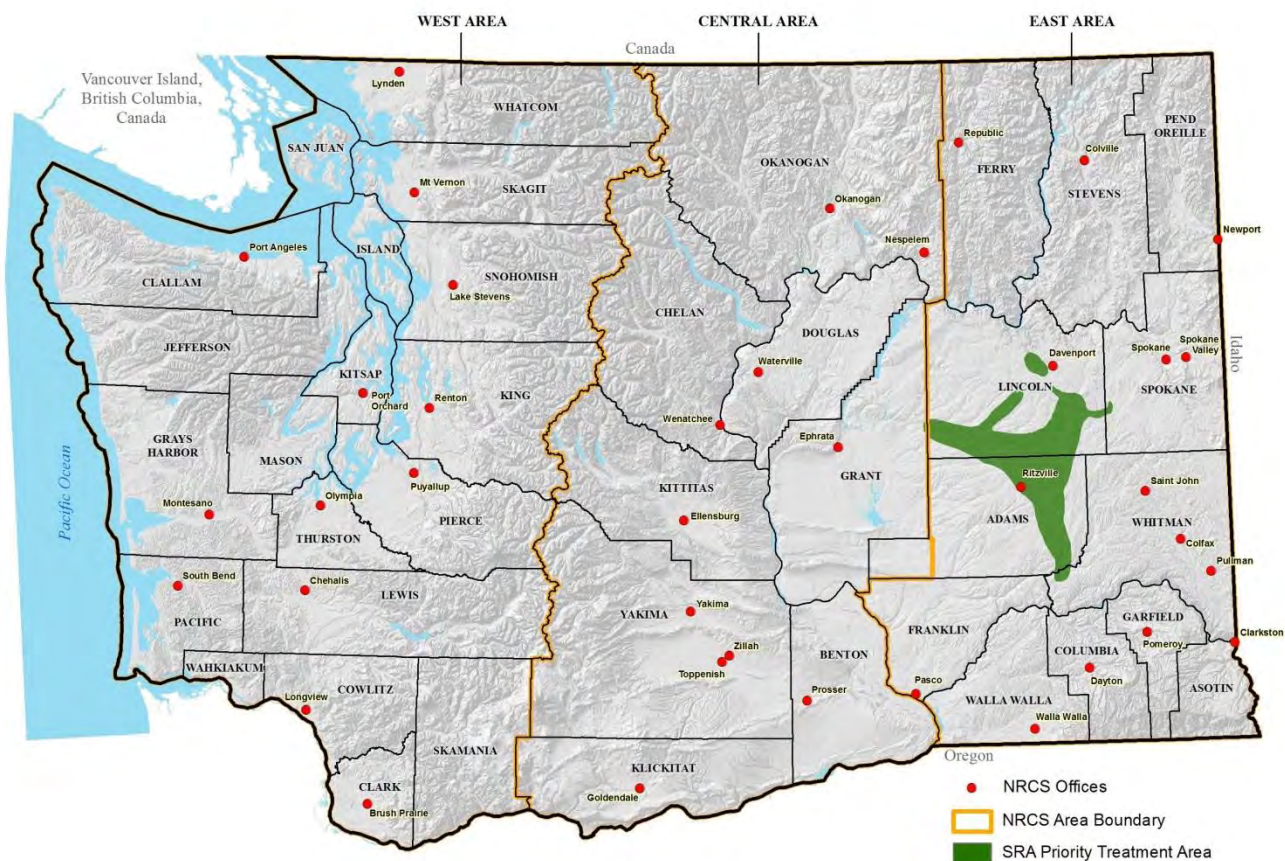


Fig. 54 - Other Associated Ag Land – Undesirable Plant Productivity and Health Resource Concern Priority Treatment Area Map

INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

Habitat is degraded when the quantity, quality, or connectivity of food, cover, space, shelter, and/or water is inadequate to meet requirements of identified fish, wildlife, and invertebrate species.

Washington State Priority Resource Concern	OTHER ASSOCIATED AG		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation	711,300	194,150	15,200

Fig. 55 – SRA Acreage Table for Other Associated Ag - Habitat Degradation

Other Associated Ag Land – Habitat Degradation - Resource Concern Indicator(s):

- **Farm Service Agency (FSA) Conservation Reserve Enhancement Program (CREP) Streams** - spatial segments of fish bearing streams eligible for conservation enhancement
- **USDA Natural Resources Conservation Service (NRCS)** - 2013 Sage Grouse Initiative (SGI) Priority Areas.
- **Washington Department of Health (WDOH)** - Shellfish Growing Areas.
- **Washington State Department of Fish and Wildlife (WDFW)** – Salmonid Stock Inventory (SASI) streams.
- **East Area criteria:** Idle center pivot corners in the West Palouse Team, wildlife habitat in the Palouse Team, SASI streams in the Snake River Team.
- **West Area criteria:** All pasture lands associated with CREP streams.
- Local knowledge and expertise of the NRCS Area specialists.

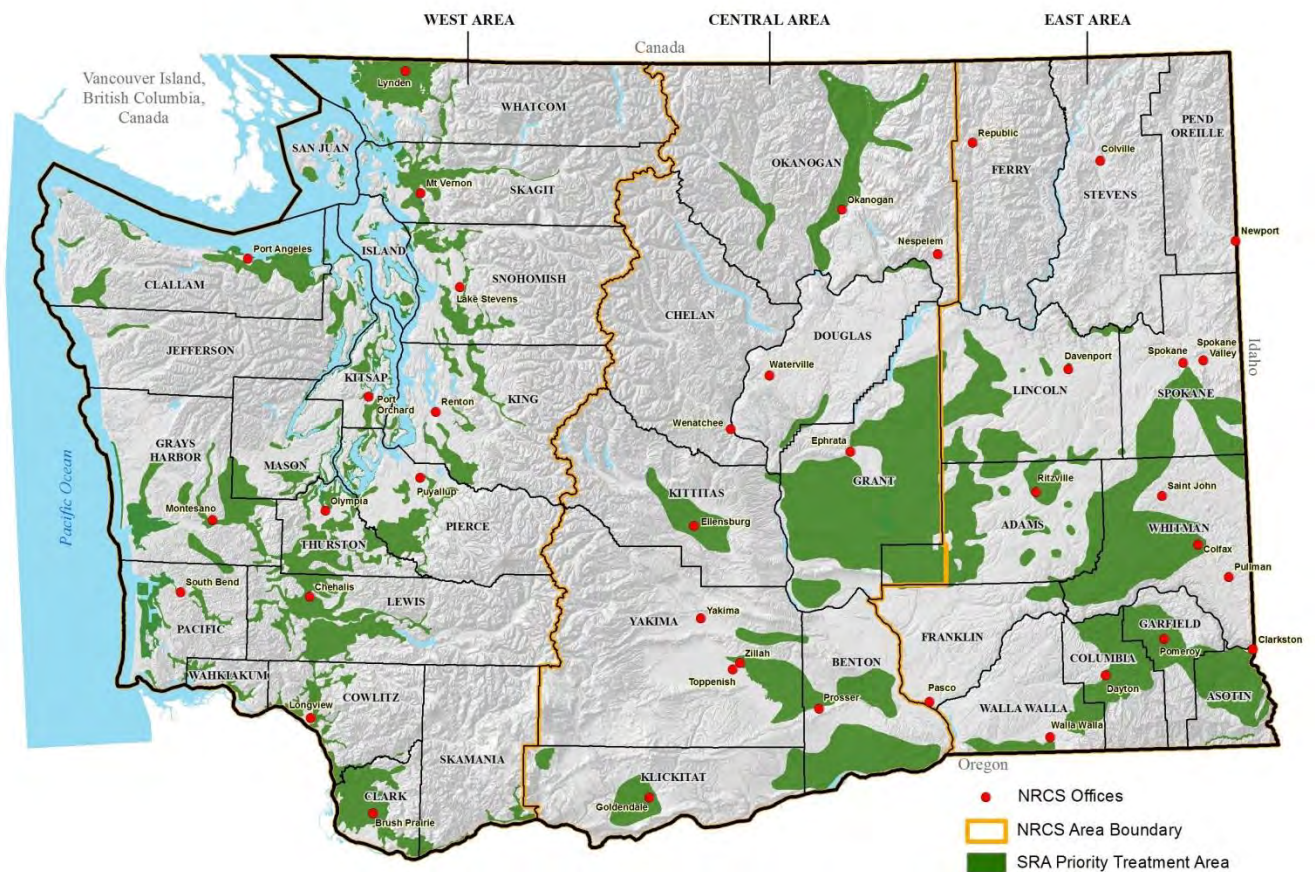


Fig. 56 - Other Associated Ag Land – Habitat Degradation Resource Concern Priority Treatment Area Map

Shellfish growing areas have been added to this priority treatment area. This is the only resource concern where off-shore treatment areas have been included. Many of these treatment areas along the shoreline will be difficult to see at this map scale.

Tribal Resource Concerns on the Other Associated Ag Landuse

The Priority Treatment Acres for each resource concern show the amount of acreage that all participating tribes will try to address on this particular landuse from 2013 to 2015.

Washington Tribal Priority Resource Concern	OTHER ASSOCIATED AG		
	Potential At-Risk Acres	Acres Needing Treatment	Priority Treatment Acres
SOIL EROSION - Sheet, rill, and wind erosion	320,700	198,900	75,600
SOIL EROSION -Excessive bank erosion from streams, shorelines, or water conveyance channels; also from forest roads	320,700	198,900	75,600
WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications	320,700	198,900	75,600
WATER QUALITY DEGRADATION - Excessive sediment in surface waters	320,700	198,900	75,600
WATER QUALITY DEGRADATION - Elevated water temperature	320,700	198,900	75,600
DEGRADED PLANT CONDITION - Excessive plant-pest pressure	320,700	198,900	75,600
DEGRADED PLANT CONDITION - Undesirable plant productivity and health	320,700	198,900	75,600
DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation	320,700	198,900	75,600
INADEQUATE HABITAT FOR FISH AND WILDLIFE -Habitat degradation	320,700	198,900	75,600

Fig. 57 – Tribal Resource Assessment Acreage Table for the Other Associated Ag Landuse

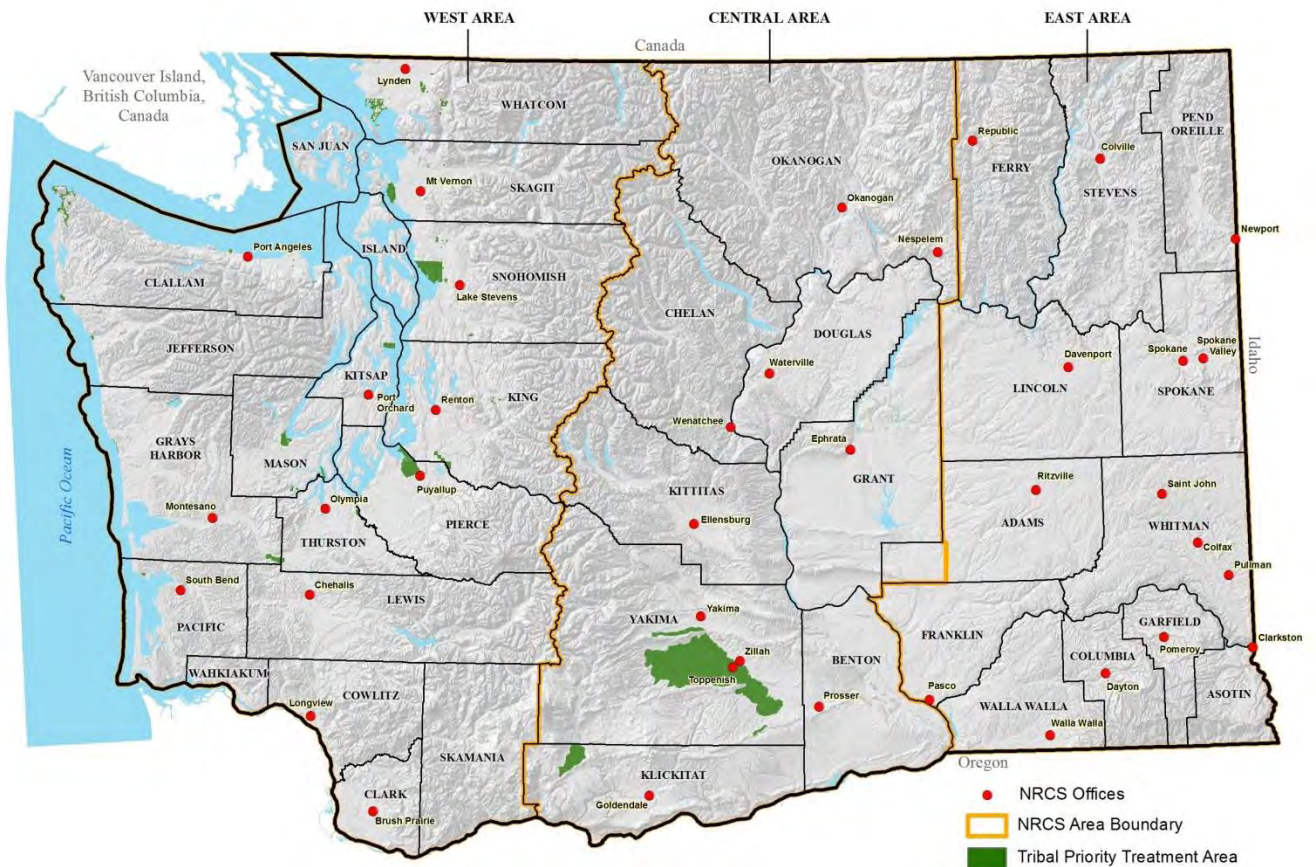


Fig. 58 – Tribal Other Associated Ag Landuse Priority Treatment Area Map

Besides treatment areas for terrestrial species and fin fish, shellfish growing areas have been added to this tribal priority treatment area along the coastline within tribally owned lands. Many of these areas will be difficult to see at this map scale.

INEFFICIENT ENERGY USE

Landuse(s) – All Landuses

Energy is a newly identified resource concern for the NRCS, and is integral with energy conservation on facilities and landscape farming and ranching. In Washington State, the NRCS has been working effectively with our partnership to establish energy audit tools and technical service providers to assist with addressing this resource concern.

Resource Concern Descriptions (two resource concerns, no maps)

- **INEFFICIENT ENERGY USE - Equipment & Facilities**

Inefficient use of energy in the farm operation increases dependence on non-renewable energy sources that can be addressed through improved energy efficiency and the use of on-farm renewable energy sources.

As an example, this concern addresses and improves milk cooling efficiency, irrigation pumping, heating and cooling of livestock production facilities, manure collection and transfer, grain drying, and similar common on-farm activities.

- **INEFFICIENT ENERGY USE – Farming/Ranching Practices and Field Operations**

Inefficient use of energy in field operations increases dependence on non-renewable energy and sources that can be addressed through improved energy efficiency and the use of on-farm renewable energy sources.

An example of how to address this resource concern is Crop Residue Management. According to the Conservation Technology Information Center, a farmer can save at least 3.5 gallons of fuel per acre by going from conventional tillage methods to no-till, a conservation practice that leaves the soil undisturbed from harvest through planting except for narrow strips that cause minimal soil disturbance.

In fiscal year 2011, NRCS Washington began a pilot Energy program in the NRCS West and Central Areas and completed energy audits primarily related to facilities and structures on dairies. The energy saving conservation practices identified from these audits were ready to be implemented in fiscal year 2012.

NRCS Washington expanded the energy audits to the Central and East Areas in fiscal year 2012, this time focusing on energy efficiencies on the landscape and environment. The energy saving practices identified from these audits will be implemented in 2013.

NRCS Washington's goal for this resource concern is to build up our energy program in the state and provide outreach to partners and industry. This will provide NRCS and landowners the opportunity to conduct energy audits, monitor energy usage and reduce consumption, ultimately allowing landowners to reap financial benefits while reducing dependence on fossil fuels. NRCS Washington will integrate the energy program through conservation planning and technical and financial assistance throughout the next three years.

APPENDIX I – Summary of Changes to the 2012 SRA Update

Since the original SRA was first published in September 2011, there have been a number of significant changes made to the document. Below is a summary of these changes.

Tribal Resource Assessment

The original SRA published in 2011 included both private and tribal lands. However, in 2012 the NRCS and the Washington Conservation Tribal Advisory Council (WATCAC) determined that a state Tribal Resource Assessment (TRA) should be undertaken and completed. This was done concurrently with the 2012 SRA update, and completed in March 2013.

The TRA was developed on both on-reservation and off-reservation tribally-owned lands. This necessitated a modification to the SRA priority treatment areas to remove on-reservation and off-reservation lands. The TRA priority treatment areas are exclusive to the TRA. These changes are reflected in the new SRA and TRA maps found in this document. This also changed the way in which the acreages are presented, with the SRA and TRA acreages given separately.

The tribes identified eleven tribal priority resource concerns on their lands. Nine of these tribal resource concerns match the resource concerns identified in the SRA, with two being unique to the tribes.

This updated 2012 SRA incorporates the TRA findings, including the tribal resource concerns, maps and acreages. An overview of the TRA process can be found in the appendices. The published 2012 TRA document contains expanded tribal resource assessment discussion topics and should be consulted for additional detail beyond what is provided here.

Changes to the SRA Format

The 2011 version of the SRA presented its findings in sections based on resource concerns. After some internal NRCS discussions, it was determined that a new format presenting the resource concerns based on landuse sections would be more useful. This change allows a reader or planner to see all of the priority resource concern findings corresponding to each of the five landuses.

This format change also had the benefit of reducing the number of maps and tables necessary for inclusion, thereby reducing the size of the document.

Another change to the format of the document is that only the major findings of the assessments have been retained in the five landuse sections, while much of the process detail has been placed in the appendices at the end of the document.

Removal of the Priority Resource Concern Rankings

The original SRA guidelines required that the identified priority resource concerns be ranked. These rankings appeared in the original 2011 SRA. After some consideration, NRCS Washington determined that all of the identified resource concerns would be considered equal. Therefore these rankings have been removed.

Changes to the Priority Treatment Areas

The Priority Treatment Areas are the lands targeted for treating the identified resource concerns. These areas are portrayed on the maps in the document.

One component of the 2012 SRA update was to give the NRCS Areas a chance to revisit the priority treatment areas. As a result, modifications have been made expanding a selection of the boundaries. The acreages for the modified treatment areas have been correspondingly updated.

Additionally, shellfish growing areas have been added to the Other Associated Ag – Habitat Degradation priority treatment area. This is the only resource concern where off-shore treatment areas have been included.

The Crop landuse was added as a priority to the Habitat Degradation resource concern. There is now a map and acreage table for this landuse/resource concern combination.

The priority treatment areas on tribal lands are discrete from the SRA priority areas, so the original SRA boundaries have been modified to exclude the on-reservation and off-reservation tribally-owned lands identified in the TRA.

All of these changes are reflected in the 2012 SRA maps and tables.

The Priority Treatment Area Maps

The Priority Treatment Area maps displayed in this document are related to both SRA private and TRA tribal lands.

Because of the way the TRA was developed, the tribes will be able to address any tribally identified priority resource concern anywhere within the corresponding landuse priority treatment area. This means that only five TRA maps needed to be developed. The TRA treatment area maps include both on-reservation and off-reservation tribal lands. Many of these tribal lands are small parcels and will not be readily seen at the scale of the maps in this document.

The SRA treatment areas were developed utilizing resource concern indicators, or the knowledge and expertise of the NRCS Area Specialists. This means that most the SRA maps are unique to the resource concern/landuse combination, resulting in more maps than were developed for the TRA. The SRA maps include only non-tribal, non-urban, private lands.

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APPENDIX II – Additional Sheet, Rill and Wind Erosion Information

In the SRA, the “Crop – Sheet, Rill and Wind Erosion” resource concern was initially developed in two parts, one for “Crop-Sheet and Rill Erosion” and one for “Crop-Wind Erosion”. There is some overlap in their Priority treatment Areas, but each was derived from different resource concern indicators. After these two were completed, they were then merged together to make the “Crop – Sheet, Rill and Wind Erosion” Resource Concern Priority Area shown earlier in this document.

Because these two priority treatment areas were developed separately, additional information and maps have been provided for both. Therefore, on the next few pages you will see a discussion and map for “Crop-Sheet and Rill Erosion”, followed by a discussion and map for “Crop-Wind Erosion”.

Sheet and Rill Erosion Only

Crop – Sheet and Rill Erosion Only – this information is provided to show the Sheet and Rill Erosion portion of the Sheet, Rill and Wind Erosion resource concern.

Sheet and rill erosion is caused primarily from rainfall from late fall through spring, and especially from rain on snow events when the soils are frozen. Estimates of tens of tons of soil loss per acre per year from sheet and rill erosion, in addition to more visible channel and gully erosion, has been well documented. The soils where the erosion occurs are degraded and become less productive. The detached soil, or sediment, is carried across fields with the runoff until it is either deposited on land, on roads, in culverts, or carried into streams into rivers. When the sediment deposition occurs on growing crops, economic damage occurs to the local producer. When it is deposited on roads or into culverts then transportation departments must pay for removal of the safety hazard and clogged waterways. When it is carried into a stream or river it degrades wildlife habitat and affects water quality.

Resource Concern Priority Area Treatment Acreages:

- State Acreage: 320,000

Crop – Sheet and Rill Erosion Only - Resource Concern Indicator(s):

- **NRCS Statewide Soil Survey derivatives:** Sheet and Rill Erosion Risk.
- **Washington State Department of Agriculture (WSDA) Croplands Subsets** – Rill Irrigated cropland subset.
- **Central Area criteria** – Croplands with Erosion Hazard class of moderate to very severe, all rill irrigated cropland in Kittitas, Grant and Yakima Counties.
- **East Area criteria** – Croplands with Erosion Hazard class of moderate to very severe.

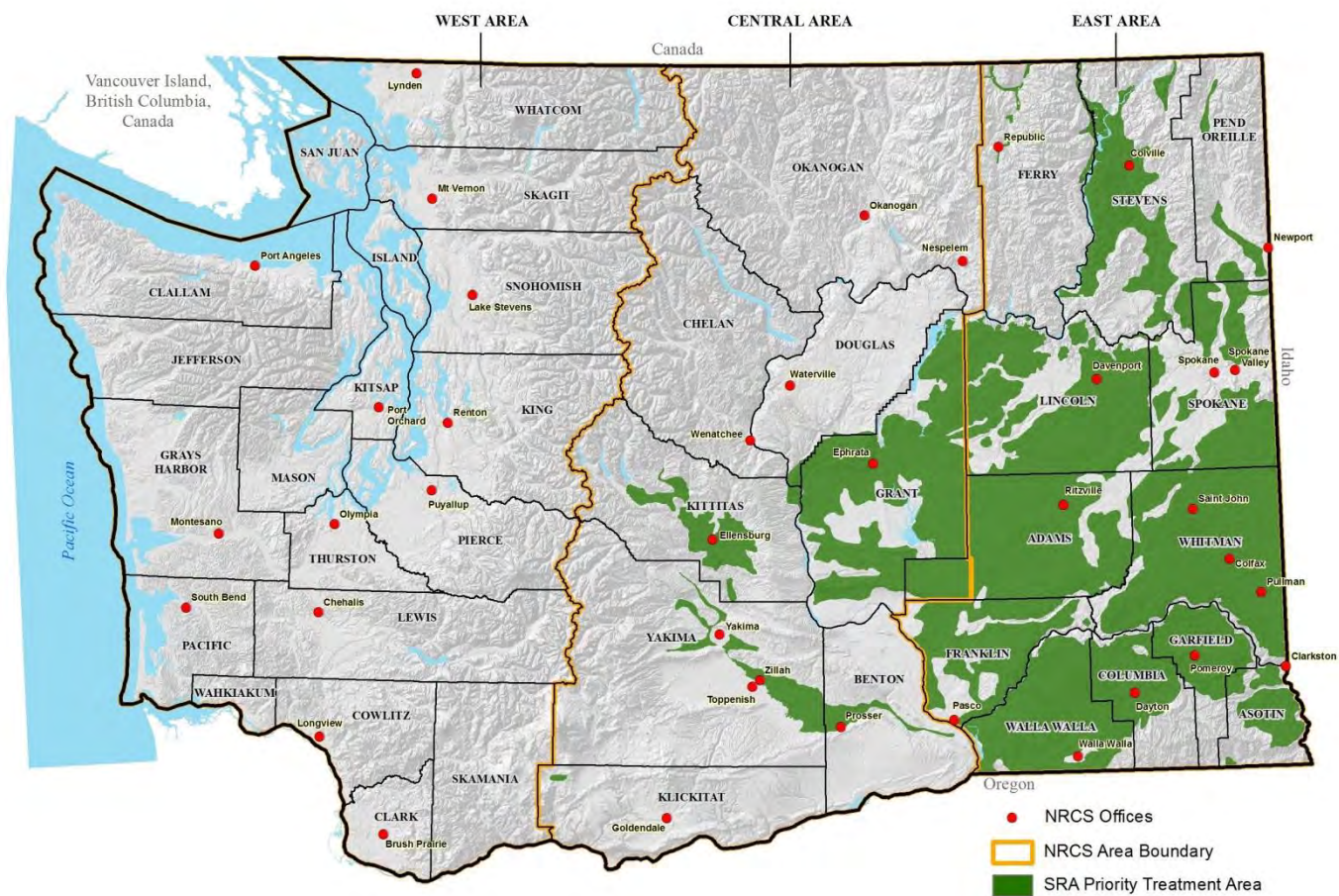


Fig. 59 - Crop – Sheet and Rill Erosion Resource Concern Priority Treatment Area Map

Wind Erosion Only

Crop – Wind Erosion Only – this information provided to show the Wind Erosion portion of the Sheet, Rill and Wind Erosion resource concern.

Wind erosion occurs when the soils are not protected by adequate crop cover, crop residues or other conservation practices, and the wind picks up enough velocity to detach the finer soil particles on the land. The soils where the wind erosion occurs are degraded and become less productive. The eroded soil particles become airborne affecting air quality, visibility and health. In some cases visibility is so poor that highways have been closed to avoid vehicular accidents and loss of life.

Resource Concern Priority Area Treatment Acreages:

- State Acreage: 280,000

Crop – Wind Erosion Only- Resource Concern Indicator(s):

- **NRCS Statewide Soil Survey derivatives:** Wind Erodibility Index.
- **NRCS Climatic C Factor isobars** – index of climatic erosivity, specifically wind speed and soil moisture.
- **NRCS Water and Climate Center PRISM** - Average Annual Precipitation.
- **East Area criteria** - Croplands susceptible to wind erosion in 16' or less precipitation zone; Wind Erodibility Index of 56 and above, cropland in Northeast Team.
- **Central Area criteria** – Wind Erodibility Index of 86 or above in Chelan, Douglas and Grant counties, dry cropland in Frenchman Hill and east of Moses Lake, dry and irrigated cropland in Horse Heaven Hills., dry and irrigated cropland in in Big Bend team.
- Local knowledge and expertise of the NRCS Area specialists

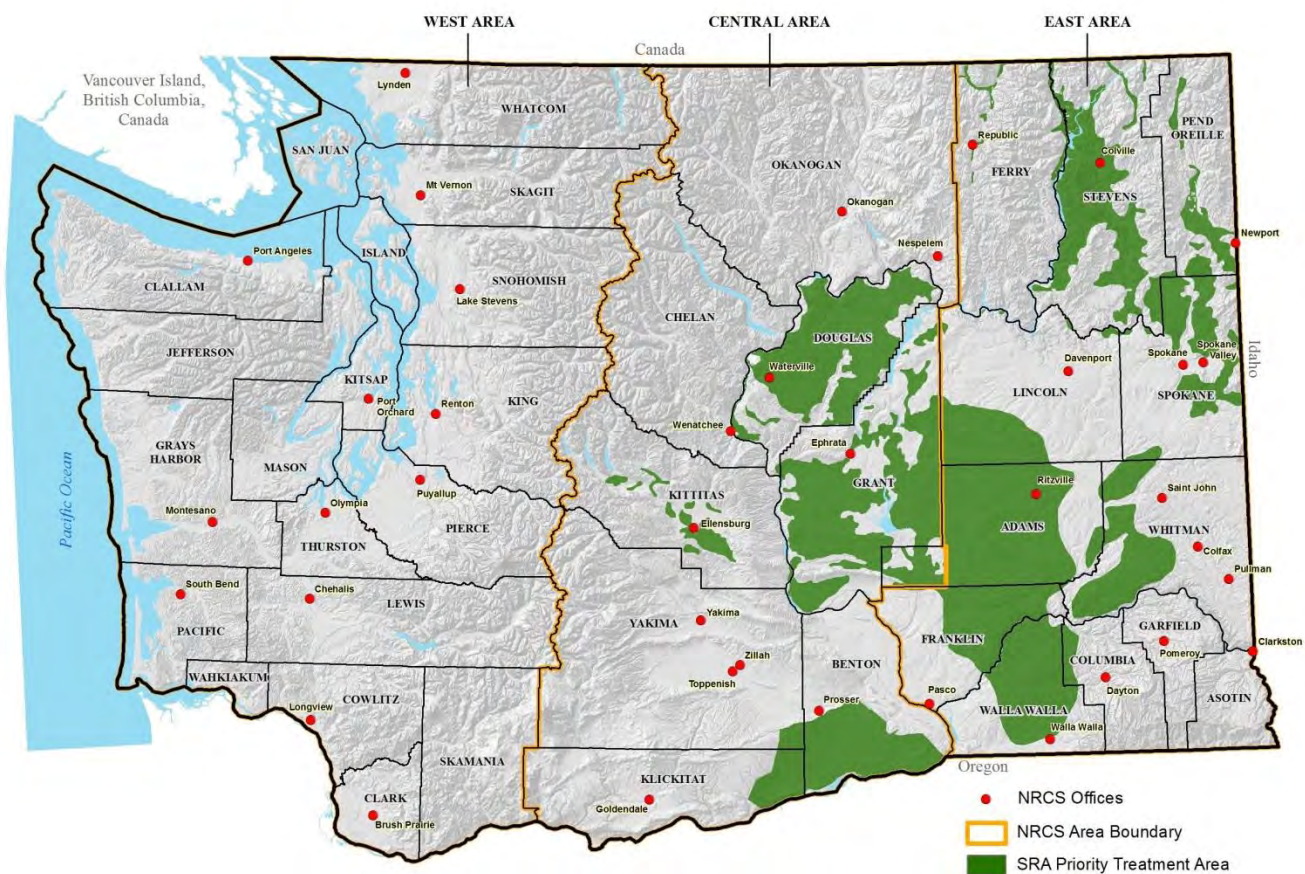


Fig. 60 - Crop – Wind Erosion Resource Concern Priority Treatment Area Map

APPENDIX III – SRA and TRA Resource Concern Definitions and Goals

Below is a list of the fourteen Priority Resource Concerns identified through the SRA and TRA processes.

Of these fourteen resource concerns, the SRA and TRA identified nine coincident resource concerns:

- **SOIL EROSION** - Sheet, rill, and wind erosion
- **EXCESS/INSUFFICIENT WATER** - Inefficient use of irrigation water
- **WATER QUALITY DEGRADATION** - Excess nutrients in surface and groundwater
- **WATER QUALITY DEGRADATION** - Excess pathogens and chemicals from manure, biosolids or compost applications
- **WATER QUALITY DEGRADATION** - Excessive sediment in surface waters
- **DEGRADED PLANT CONDITION** - Excessive plant pest pressure
- **DEGRADED PLANT CONDITION** - Undesirable plant productivity and health
- **DEGRADED PLANT CONDITION** - Wildfire hazard, excessive biomass accumulation
- **INADEQUATE HABITAT FOR FISH AND WILDLIFE** - Habitat degradation

There are three resource concerns unique to the SRA:

- **WATER QUALITY DEGRADATION** - Pesticides transported to surface and ground waters
- **INEFFICIENT ENERGY USE** - Equipment and Facilities
- **INEFFICIENT ENERGY USE** - Field Operations

There are two resource concerns unique to the TRA:

- **SOIL EROSION** - Excessive bank erosion from streams, shorelines, or water conveyance channels; also from forest roads
- **WATER QUALITY DEGRADATION** - Elevated water temperature

On the following pages you will find full definitions for these fourteen Priority Resource Concerns, and the goals for addressing them.

SOIL EROSION - Sheet, rill, and wind erosion

Landuses associated with this resource concern:

- SRA – Crop Lands
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

Sheet, rill and wind erosion is caused by the detachment and transportation of soil particles caused by rainfall runoff or splash, irrigation runoff, or by wind.

Vast areas of non-irrigated cropland in counties east of the Cascade Mountains have soil and slopes vulnerable to sheet, rill and/or wind erosion. Soils not protected by adequate crop cover, crop residues or other conservation practices will have soil detachment and movement by water or wind.

The goal for this resource priority is that meaningful decreases in annual and seasonal levels of erosion caused by sheet, rill and wind erosion are achieved. The starting point needs to be the adoption of conservation systems by producers that alter the entrenched systems of erosive crop management. Instilling awareness and positive association of these systems needs to be accelerated through an educational process describing not only the obvious environmental effects of erosion, but also the benefits in economic terms and long term soil productivity.

SOIL EROSION - Excessive bank erosion from streams, shorelines, or water conveyance channels, also from forest roads

Landuses associated with this resource concern:

- SRA – N/A
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

This resource concern is related to sediment from banks or shorelines threatening to degrade water quality and limiting use for intended purposes.

Stream stability is an active process, and while streambank erosion is a natural part of this process, it is often accelerated by altering the stream system. Streambank erosion is that part of channel erosion in which material is eroded from the streambank and deposited at the base of the slope or in the channel. Streambank erosion is usually associated with erosion of the streambed. It occurs along perennial, intermittent, and ephemeral streams.

This resource concern is primarily related to removal of streamside vegetation which helps to provide structural support for the streambanks; or the alteration of the natural topography caused by harvesting/site preparation activities or road and trail systems. Installation or use of roads/skid trails that run adjacent and/or parallel to and within 200' of streams, waterways and shorelines can increase this resource concern. Harvesting and site preparation activities within or through the riparian forest buffer area is likely to increase this resource concern. In addition, conversion from forest land to other land uses without appropriate riparian forest buffer is also likely to increase this resource concern.

This resource concern has been mentioned as a primary source of soil erosion and sedimentation in drainage ways within tribal lands from roads and untreated conveyance lines, structurally threatening ecological sites and water quality.

Members of the WATCAC identified the following as potential goals on tribal lands for the Soil Erosion – Excessive bank erosion resource concern:

- Reduced temperature, sedimentation and turbidity thereby improving water quality.
- Stabilization of shorelines and some stream restoration.
- Stabilization of unlined conveyance systems.
- Water habitat improvements with installation of log jams or other alternatives.

EXCESS/INSUFFICIENT WATER - Inefficient use of irrigation water

Landuses associated with this resource concern:

- SRA – Crop and Pasture Lands
- TRA – Crop and Pasture Lands

This is a resource concern when:

- Irrigation water is not stored, delivered, scheduled, or applied efficiently.
- Aquifer or surface water withdrawals threaten sustained availability of ground or surface water.
- Available irrigation water supplies have been reduced due to aquifer depletion, competition, regulation, drought, or some combination of these.

Inefficient use of irrigation water impacts on- and off-site water quantity and quality. Irrigation systems and water management practices can waste water and negatively affect farm profitability.

Irrigated agriculture is essential in meeting the nation's food and fiber production needs. Agriculture is the nation's largest water user, accounting for more than 85% of the nation's annual water consumption. Emerging problems that further complicate resource protection and water allocation include: serious long-term drought conditions, critical ground water declines occurring in agricultural production areas, saltwater intrusion into ground water supplies, and competition for water among a multitude of water users, including power generation, drinking water supplies, minimum stream flows, etc.

Solutions are available to address many of the competing water resource needs. Choices generally include conservation of the water used, conversion to other crops that utilize less water, and conversion to other sources of water. Conserving water could include improvements in irrigation water use efficiencies, off stream storage of water during periods of excess runoff, water re-use and water recycling, and ground water recharge.

This is a resource priority in our state, specifically related to the irrigated cropland in central Washington within the Columbia Basin. We are proposing to address approximately 200,000 acres in three years, which is 20% of the irrigated lands needing to be upgraded to more efficient irrigation systems. Conversion from surface and/or rill irrigation systems with only 30-40% irrigation efficiency to sprinkler systems at 80% efficiency will produce water savings, reduce irrigation induced erosion rates of 30 tons per acre, and improve water quality degraded by sedimentation and nutrient loading. In addition to irrigation system conversions, addressing this resource

concern with agronomic conservation practices will result in conversion of irrigated cropland to dry land cropland.

Members of the WATCAC identified the following as potential goals for the Excess/Insufficient Water - Inefficient use of irrigation water resource concern:

- Treatment of current irrigated and untreated acres through the installation of irrigation efficient irrigation systems.

WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwater

Landuses associated with this resource concern:

- SRA – Crop, Pasture and Other Associated Ag Lands
- TRA - Crop, Range and Pasture Lands

Nutrients (organics and inorganics) are a resource concern when transported to receiving waters through surface runoff, leaching into shallow ground waters, or both in quantities that degrade water quality and limit use for intended purposes.

On cropland, nitrogen and phosphorus can be over applied and degrade plant health and vigor. Over application of nitrogen and phosphorus may lead to excess nutrients in surface and ground water. The excess nutrients cause algae and other aquatic plants to grow in lakes, which deprive aquatic life of vital oxygen. Pesticides may be over applied or applied near water bodies leading to surface water contamination.

In addition, this resource concern is a priority as it relates to the Animal Feeding Operations/Confined Animal Feeding Operations (AFO/CAFO) industry, and the lack of adequate animal waste management in particular. Animal waste is a point source of nutrients and pathogens into our waterways that degrade and threaten water quality and aquatic habitat.

Our goals for this resource priority are:

- To focus on western and central Washington dairies and feedlots to address their waste management systems comprehensively with Comprehensive Nutrient Management Plans (CNMP) and waste management systems.
- To improve agricultural practices in watershed uplands to minimize closures and reopen shellfish beds.
- To implement water quality monitoring improvements related agricultural drainage ways on 303D listed streams.
- Address waste storage and additional related issues on small holding ranches and farms.
- Implement water quality monitoring practice standards as part of the National Water Quality Initiative (NWQI).

Members of the WATCAC identified the following as potential goals on tribal lands for the Water Quality Degradation – Excess nutrients in surface and groundwater resource concern:

- Improvements are made to water quality by addressing 303d listed streams through the treatment of riparian areas.

WATER QUALITY DEGRADATION - Pesticides transported to surface and ground waters

Landuses associated with this resource concern:

- SRA – Crop Lands
- TRA – N/A

Pesticides are a resource concern when transported to receiving waters in quantities that degrade water quality and limit use for intended purposes.

The term “pesticide” is a composite term that includes all chemicals that are used to kill or control pests. Pesticides can be harmful to people and the environment. Part of the problem is the toxicity of some pesticides, but even more important is the sheer volume of pesticides used in this country every year. Some of this pesticide finds its way to our water, air, and soil.

The ecological impacts of pesticides in water are determined by their toxicity, persistence, degradates, and environmental fate. The use of Integrated Pest Management strategies and techniques involving prevention, avoidance, monitoring, and suppression are effective means to reduce the risks associated with pesticide use. A risk assessment tool can be used to identify risks and guide the mitigation of off-site pesticide hazards. Mitigating practices include residue management, cover crops, conservation crop rotation, and Integrated Pest Management.

Pesticides may be over applied or applied near water bodies leading to surface water contamination. Treated soils eroding from irrigated and non-irrigated cropland may cause increased surface water sedimentation and contamination. Some Pesticides bind to soil particles and eroded soils transport this kind of chemical from the field to water bodies, degrading water quality and wildlife habitat that depend on clean and safe water. Our goal is to focus on cropland and other landuses to improve storage, management and disposal of their pesticides in a safe manner to reduce or eliminate risk of degrading water quality in surface and groundwaters.

WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, biosolids or compost applications

Landuses associated with this resource concern:

- SRA – Other Associated Ag Lands
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

This resource concern relates to the pathogens, pharmaceuticals, and other chemicals that are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes. It also includes the offsite transport of leachate and runoff from silage, compost, or other organic materials.

Many potential pathogens (disease-causing microorganisms) can be found in manure. These pathogens include bacteria, protozoa, and viruses. If effected soil amendments are not adequately treated and contained, pathogens may enter ground or surface water posing a potential risk to human and animal health.

Pathogens can be transmitted to humans directly through contact with animals and animal waste or indirectly through contaminated water or food. Human illness and death has resulted from exposure to pathogens from livestock and poultry manure. Pathogens can also be transmitted to domestic and wild animals with similar results.

The most effective tool in eliminating pathogens from manure, from both practical and economic standpoints, is time. If manure is allowed to sit undisturbed in storage or in soil, the concentration of pathogens will decrease with time as they die off or are overgrown by native microbes. Managing manure for pathogens is approached in two phases: 1) collection and storage and 2) land treatment. In the collection and storage of manure, pathogens can be addressed by biological control (composting, anaerobic digesters, etc.), chemical methods, and control of runoff and leaching. It is also important to manage livestock access to streams, rivers and water bodies.

Land application is commonly a critical process in manure management. Pathogens from manure can threaten humans who are exposed to runoff, have direct contact with manure, or consume food or water contaminated with manure. Application rate and seasonal conditions are important factors contributing to the transfer of pathogens from lands where manure has recently been applied to nearby surface water. Managing the rate, timing and method of application of manure are critical elements in managing for pathogens. Keeping a buffer zone or setback distance between manure application areas and water bodies is a common practice that greatly decreases the transport of pathogens to those water bodies.

As with the Water Quality Degradation-Excess Nutrients resource concern, this resource priority is related to the AFO/CAFO industry and the lack of adequate animal waste management in particular. Animal waste is a point source of nutrients and pathogens into our waterways that degrade and threaten water quality.

Our goal for this resource priority is to work with dairies and feedlots to address waste management systems comprehensively with Comprehensive Nutrient Management Plans (CNMP), and waste management systems.

WATER QUALITY DEGRADATION - Excessive sediment in surface waters

Landuses associated with this resource concern:

- SRA – Crop, Forest and Other Associated Ag Lands
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

This resource concern is related to the off-site transport of sediment from sheet, rill, gully, and wind erosion into surface water that threatens to degrade surface water quality and limit use for intended purposes.

The vast amount of cropland with erosive soil and exposed streambanks in Washington counties east of the Cascade Mountains are seeing erosion that has effects far beyond where the land is eroded. Unprotected areas have soil detachment and movement by water, primarily from rain. This is especially true from rain on snow events when soils are frozen, with studies documenting tens of tons of soil loss per acre. On Forestland, throughout the state but particularly west of the Cascade divide, water quality degradation due to sediment comes mainly from surface water runoff along the forest road and trail systems.

When sediment enters the water column it increases turbidity and carries pollutants such as nutrients and pesticides. Sediment deposition on growing crops causes economic damage to producers. When deposited on roads or into culverts, the sediment becomes a safety hazard and causes clogged waterways and fish passage barriers requiring costly removal. In irrigation canals and shipping facilities, the sediment requires expensive

mechanical removal and transport. Habitat for economically and culturally important fisheries is degraded by sedimentation. There are indications that degraded water quality in the Columbia River and other major rivers has impacts into the ocean and associated coasts.

The goal of this resource priority is to improve the quality of surface waters and maintain these improvements to protect human health and support a healthy environment. On irrigated cropland, cooperators should apply Irrigation Water Management practices resulting in irrigation water applied to meet plant needs. Nutrient and Pest Management practices are applied to all cropland and other associated agriculture lands.

On forestland in western Washington, the goal is to apply conservation practices on forest roads to manage water drainage, and control erosion and sedimentation from reaching waterways, to improve fish passage and aquatic habitat.

Members of the WATCAC identified the following as potential goals on tribal lands for the Water Quality Degradation – excessive sediment resource concern:

- Improvements are made to water quality through the removal of 303d listing of streams made possible through the treatment of riparian areas.

WATER QUALITY DEGRADATION - Elevated water temperature

Landuses associated with this resource concern:

- SRA – N/A
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

This resource concern is related to surface water temperatures exceeding State/Federal standards and/or limiting use for intended purposes.

Temperature has an important influence on water chemistry. As water temperature rises, there is a corresponding decrease in the availability of oxygen, carbon dioxide, and other gases important to aquatic life. Elevated water temperature also results in increases of dissolved minerals that can further degrade water quality. In some areas, Federal and/or State law regulate the temperature of surface water.

Water temperature has extremely important ecological consequences. The metabolic rate of organisms rises with increasing water temperatures, resulting in increased oxygen demand. This is coupled with the reduced amount of oxygen that is available as the water temperature increases. During extended periods of warming, water may lose its potential to support healthy populations of fish and other aquatic organisms and may even kill desired species or lead to a change in species diversity. Warm water also has the potential to increase the presence of dissolved toxic substances that may restrict the suitability of water for human use.

Lack of mature riparian forest buffer and other streamside woody vegetation causes an increase in this resource concern. The goal is to install appropriate riparian vegetation for the soils and site so in that, in the short term, the vegetation can provide some shading and cover and reduce water temperature along the shoreline. In the long term, the taller riparian vegetation will provide enough shading and cover to bring down water temperatures to appropriate levels for intended purpose.

Members of the WATCAC identified the following as important for the WATER QUALITY DEGRADATION - Elevated water temperature resource concern on tribal lands:

- Reducing elevated water temperature is important for not only fish bearing streams but also tributaries to fish bearing streams

DEGRADED PLANT CONDITION - Excessive plant pest pressure

Landuses associated with this resource concern:

- SRA – Forest, Range and Other Associated Ag Lands
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

This resource concern is related to the excessive pest damage to plants, including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. As an example, this concern addresses invasive plant, animal, and insect species.

Excessive plant pest pressure is an ongoing and dynamic problem. New species of noxious weeds, insect plant pests and soil pathogens are continually being discovered through agricultural and natural resource science. Additionally, improper grazing and forest management practices, or rodent and wildlife pressure, can damage forest and range plant communities. If unchecked, these pests can significantly impact and degrade plant resources. Invasive plants in western Washington, such as knotweed and reed canary grass, have significantly altered riparian flood plain habitat important to calving elk, and can “choke” a stream channel eliminating fish habitat and even fish passage.

The goal is to address this resource concern on forest, range and other associated agriculture lands in the state to install practices and improve management of resources to reduce pest and invasive species pressure on these land uses.

Members of the WATCAC identified the following as potential goals on tribal lands for the Degraded Plant Condition – Excessive plant pest pressure resource concern:

- Install practices and improve management of resources to reduce pest and invasive species pressure on Rangeland, Forestland, and Cropland/hayland.

DEGRADED PLANT CONDITION - Undesirable plant productivity and health

Landuses associated with this resource concern:

- SRA – Forest, Range, Pasture and Other Associated Ag Lands
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

Plant productivity, vigor, and/or quality should not negatively impact other resources or yield potential due to improper fertility, management, or plants not adapted to a site. As an example, this concern addresses pollinators, beneficial insects, wind erosion, and excess soil deposition that influence plant condition.

Grazing lands, including those in partial or fully forested areas, cannot produce to their potential based on soil types and climate, because plant productivity, vigor, and quality are degraded, and negatively impact other resources. This includes ranges where native plants have been replaced with undesirable species, as well as native vegetation stressed by heavy and unseasonal grazing, drought, and competition from invasive weeds.

The health of forest trees are significantly degraded due to overstocking. Overstocking puts these trees under significant stress due to excess competition for water, nutrients, light and growing space. In addition overstocking adds to the spread of wildfires both horizontally across the landscape and vertically (ladder fuels) into the crowns.

The goal for these lands should be no net loss in vegetation health and productivity, and, where practical, increases in productivity and health. The short-term goal is an upward trend in plant vigor, however, the long-term goal is an increase in health and productivity which will requires decades of good management. Improving native vegetation is a priority, but adapted introduced species could be used where management for a high level of productivity is desired.

Members of the WATCAC identified the following as potential goals on tribal lands for the Degraded Plant Condition - Undesirable plant productivity and health resource concern:

- Restore and/or reintroduce traditional plants for cultural uses and traditional food sources.

DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation

Landuses associated with this resource concern:

- SRA – Forest Lands
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

This resource concern addresses the kinds and amounts of fuel loadings (plant biomass) that create wildfire hazards and thereby pose risks to human safety, structures, plants, animals, and air resources.

Tribal and Non-Industrial Private Forest Lands (NIPF) make up the largest NRCS land use in Northeast and Western Washington. These lands contribute greatly to the local economy and provide millions of acres of wildlife habitat. Past unmanaged forest lands have left many of these forest land acres in a degraded condition with overstocked stands of trees susceptible to forest disease and pest outbreaks and at risk to catastrophic wildfire.

Degraded forest health due to overstocked stands has left many forested areas vulnerable to bark beetle outbreaks and increased incidence of root rot diseases. These poor health stands have an increased risk of catastrophic wildfire due to a buildup of dead woody material and tightly spaced stands subject to crown fires. Extensive, unmanaged logging in the latter half of the 20th century has left many of these lands with an unnatural species composition and stagnated forest stands.

Our goal with this resource concern is to provide technical and financial assistance to the NIPF and tribal producers in the state for the development of forest management plans designed to adequately manage their forests and ranches to reduce the risk and intensity of wildfires. An additional focus will be those NIPF producers determined to be within areas of medium to high risk of conversion to development.

Members of the WATCAC identified the following as potential goals on tribal lands for the Degraded Plant Condition - Wildfire hazard, excessive biomass accumulation resource concern:

- Restore and/or reintroduce traditional plants for cultural uses and traditional food sources by managing forests for both large trees and desired understory plants, For example: Cedar Trees and huckleberry plants.

INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation

Landuses associated with this resource concern:

- SRA – Crop, Forest, Range, Pasture and Other Associated Ag Lands
- TRA - Crop, Forest, Range, Pasture and Other Associated Ag Lands

Habitat is degraded when the quantity, quality, or connectivity of food, cover, space, shelter, and/or water is inadequate to meet requirements of identified fish, wildlife, and invertebrate species.

Because of deficient habitat, upland, wetland and/or aquatic organisms may lack: adequate food and proper nutrition to grow, maintain health, and reproduce; shelter from adverse environmental conditions; protection from predators; environmental features necessary for a particular life need; space to locate a mate, obtain sufficient food and water, and rest; and quality or quantity of water sufficient to support proper metabolism and maintain health.

Perhaps the greatest threat to fish, wildlife, and invertebrate species is the destruction of their habitat. The availability and arrangement of food, cover, shelter, water, and space determine the number of organisms that a region can support, which is also known as carrying capacity. Increasing carrying capacity is critical to attaining long-term population stability. Conserving existing habitat and restoring habitat shortcomings improves the odds that fish and wildlife communities will thrive. When landowners keep wildlife communities intact, less regulatory intervention is required to ensure the survival of individual species.

One goal is to increase the connectivity and number of acres of suitable permanent habitat for upland game birds (sage grouse) in eastern Washington, and to create a positive impact on all priority landuses by reducing erosion and water quality concerns related to fish habitat and other wildlife.

1. Improve habitat for upland bird species including Sage Grouse, by improving native shrub steppe and introduced grassland habitats.

Within forested areas, another goal is to encourage heterogeneity of the species component and vegetative structure either vertically within a forested area and/or horizontally across the landscape.

Additionally, in western Washington, we plan to improve habitat in the drainage-ways by eliminating fish passage barriers and estuary fragmentation and creating habitat on the uplands, riparian areas and wetlands through the easement/restoration and financial assistance programs.

Conservation goals in western Washington to improve wildlife habitat for target species include:

1. Improve pollinator forage and nesting area in order to increase pollinator presence and utilization of cropland areas.
2. Improve riparian and wetland habitats in cropland areas in order to aid in recovery efforts for salmon and other priority aquatic species.
3. Improve migratory bird habitat on croplands, in areas which historically flooded early in the fall and late in the spring.
4. Improve elk forage for herds under stress, improving animal health and calf survival.
5. Improve habitat for threatened or endangered species which traditionally used habitats in current cropland areas.
6. Improve native and cultured shellfish habitats that encourage improved habitat for aquatic native species. For example, controlling oyster drill on shellfish beds.

Members of the WATCAC identified the following as potential goals on tribal lands for the Inadequate Habitat for Fish and Wildlife - Habitat Degradation resource concern:

- Restore access and/or develop habitat each year.
- Increase the number of financial assistance program contracts each year.
- Support the Pacific Salmon Habitat Improvement Partnership (PSHIP), through active participation in program applications and implementation of restoration projects.

INEFFICIENT ENERGY USE - Equipment and Facilities

Landuses associated with this resource concern:

- SRA – All landuses
- TRA – N/A

The inefficient use of energy increases costs and dependence on non-renewable energy sources.

Inefficient energy use occurs whenever facilities, equipment, or machinery operate more hours than needed to meet production goals. It may also occur when facilities, equipment, or machinery become worn out, outdated, or are poorly controlled or maintained.

High energy prices have put considerable pressure on the U.S. economy. High input costs and the inability to set prices leave the agricultural sector with limited options to be economically viable. Reducing energy use helps our nation to be energy independent and reduces costs, helping producers stay competitive in the marketplace.

There are two ways to reduce energy related production costs: 1) increase energy efficiency of the operation and 2) increase use of energy sources produced on the farm. For increased energy efficiency, NRCS Energy Estimator and Assessment tools gauge potential energy savings for a wide variety of efficiency upgrades. If these tools show energy saving opportunities, or if there are concerns about energy use and cost, NRCS staff will likely recommend an energy audit.

During an energy audit, energy experts evaluate the farming operation and recommend changes to improve energy use. Common recommendations include changes to lighting, ventilation, heating and cooling of livestock facilities, drying/curing, milk cooling, irrigation pumping, and manure handling. An energy analyst evaluates the age and condition of facilities, equipment, and machinery, and how they are operated and maintained. For on-farm renewable energy, the Energy tools provide a similar gauge of renewable energy resources. NRCS staff can help identify ways, for example, to better use solar and wind resources, take advantage of geothermal or micro-hydropower potential, and use waste for bio-energy to leverage increased efficiency efforts.

INEFFICIENT ENERGY USE - Field Operations

Landuses associated with this resource concern:

- SRA – All landuses
- TRA – N/A

The inefficient use of energy increases costs and dependence on non-renewable energy sources.

Inefficient energy use occurs whenever facilities, equipment, or machinery operate more hours than needed to meet production goals. It may also occur when facilities, equipment, or machinery become worn out, outdated, or are poorly controlled or maintained.

High energy prices have put considerable pressure on the U.S. economy. High input costs and the inability to set prices leave the agricultural sector with limited options to be economically viable. Reducing energy use helps our nation to be energy independent and reduces costs, helping producers stay competitive in the marketplace.

Money can be saved and energy dependency can be reduced by improving the efficiency of field operations, and by adopting practices that help reduce energy-intensive inputs, such as soil amendments, fertilizers, or pesticides. For improved efficiency, Natural Resources Conservation Service (NRCS) staff will most likely start by evaluating field operations used to till, plant, cultivate, and harvest crops. This assessment helps identify steps to take to reduce field operations or improve efficiency.

The NRCS Residue Management Energy Estimator tool can be used to estimate potential energy savings associated with changes in tillage, cultivation, and fertilizer use. By using a guidance system on tractors and equipment, application overlaps can be reduced and application rates can be optimized to account for variability in soil types, elevation, soil chemistry, fertility, and productivity within fields. These steps can reduce the need for fuel, fertilizer, herbicide, and insecticide, and save money. For reduced inputs, adoption of Integrated Pest Management techniques of prevention, avoidance, monitoring, and suppression can reduce pesticide and fuel use and lower environmental risk. Substituting manure for commercial fertilizer, or using nitrogen-fixing legumes as cover crops or in crop rotations can reduce the use of fossil fuel-based commercial fertilizer. Tractor operations are likely to increase, but usually money is saved. Overall energy use is lower because less natural gas will be used to produce commercial nitrogen fertilizer (that was not purchased).

APPENDIX IV – The 2012 State Resource Assessment Overview

The intent of this section is to provide an overview of the NRCS 2012 Washington State Resource Assessment (SRA) process. The NRCS 2012 SRA is based on parameters and guidance established by the NRCS National Office. Within these national parameters, NRCS Washington utilized the state resource inventory and assessment products that were developed through the Local Work Group (LWG) process in 2009, 2010 and 2011.

Administratively, NRCS Washington is divided into three NRCS Areas: West, Central and East, and further subdivided into ten multi-county Teams. Each of these NRCS Teams has a LWG composed of conservation partners and landowners that meet regularly to address the resource concerns within their counties. The LWG process resulted in LWG resource assessments containing narratives and locally identified resource concerns.

The narratives provided a geographic context for each LWG area, and information regarding local social and economic considerations covering a number of potential issues. Each LWG also filled out a resource concerns assessment worksheet where they identified and rated local resource concerns by landuse. These LWG resource assessments provided a baseline of information that assisted in determining and ranking the statewide resource concerns for the 2012 SRA.

The Local Work Group (LWG) Areas map on the following page displays the location of the NRCS and the LWG Areas.

WASHINGTON STATE LOCAL WORK GROUP AREAS

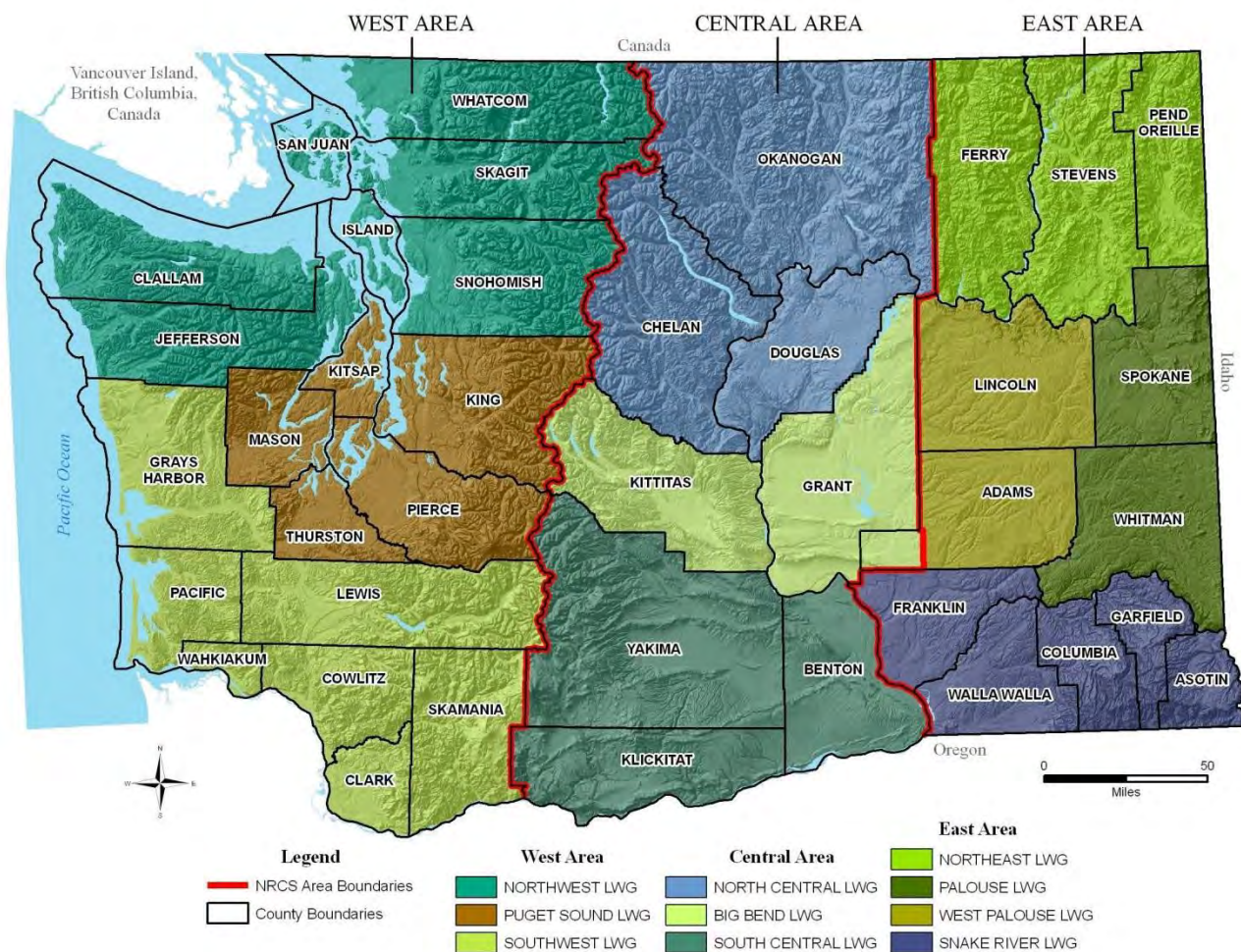


Fig. 61 – Local Work Group (LWG) Areas Map

The initial products for the 2011 SRA were a statewide resource concern worksheet listing the top thirteen statewide Priority Resource Concerns for five landuses, and geospatial boundaries locating the Resource Concern Priority Treatment Areas.

The original thirteen state Priority Resource Concerns were subsequently ranked in order of priority, one through thirteen. The top ten were then selected as the priority resource concerns, leaving the remaining three resource concerns ranking just outside of the top ten. The SRA process then focused on these top ten resource concerns. The final products from the 2011 SRA were submitted to the NRCS National Office in June 2011.

During the ranking process, it was also decided that Energy would become a NRCS State Initiative and therefore it was added as a high Priority Resource Concern. Inefficient Energy Use is inclusive of two NRCS energy resource concerns, which brought the number of SRA resource concerns to twelve:

- Inefficient Energy Use - Equipment and facilities
- Inefficient Energy Use - Farming/ranching practices and field operations.

The Inefficient Energy Use Priority Resource Concern can be addressed throughout all landuses and therefore does not have a Priority Treatment Area assigned to it, although NRCS targeted cropland for fiscal year 2012. Additionally, it should be mentioned that the Pacific Salmon Habitat Improvement Partnership (PSHIP) is also a high priority for the NRCS and for the state. Many of the priority resource concerns identified in the 2012 SRA address issues that the PSHIP is focused on correcting.

The 2012 SRA will be the foundation for Washington NRCS to address the identified resource concerns on private and tribal lands. It will also be the basis for NRCS resource-based performance planning, workforce planning, and budget and allocation formulation, for fiscal years 2013 through 2015. The final updated 2012 SRA products will be submitted to the NRCS National Office in 2013.

NRCS program planning and delivery includes the SRA priority treatment areas as a part of the NRCS screening and ranking tools. Landowner applications for NRCS programs are given a higher ranking if the application addresses one or more of the SRA Priority Resource Concerns in these areas.

SRA Resource Concern Worksheet Development

The Resource Concern worksheet was developed by the NRCS National Office for use in compiling and reporting the findings of the SRA. It is a spreadsheet tool that provides the framework to identify the state's top resource concerns and associated acreages based on five nationally designated landuse categories: Crop, Range, Pasture, Forest and Other Associated Ag Lands.

There are nine Major Resource Concerns in the worksheet. These are subdivided into thirty-one more specific Natural Resource Concerns. These thirty-one resource concerns are broad enough to provide the opportunity to address any natural resource concern on the five landuses.

In the worksheet, acreages were determined for Lands Potentially At Risk, At Risk Lands Needing Treatment, and Priority Treatment Lands. Priority Rankings were to be designated for each priority resource concern on a landuse. These are defined as:

- **Potential At Risk Acres** - land that is at risk or vulnerable to the resource concern regardless of whether conservation treatment has been applied and maintained.
- **Acres Needing Treatment** - the extent of the land that has not been treated for the resource concern according to FOTG criteria.
- **Priority Treatment Acres** - the land use acres identified for treatment for a specific resource concern during the 3 year period from FY 2012 through FY 2014.
- **Priority Rank** - the priority value assigned to the resource concerns identified within each land use where a ranking of "1" = the highest priority resource concern for that land use. Resource concerns are to be ranked independently within each land use category (for example crop resource concerns 1-9; range resource concerns 1-9).

As has been stated earlier, it was decided in 2012 to treat each of the identified resource concerns equally, and so these rankings have been eliminated.

The three NRCS Areas, utilizing the LWG information from 2010, identified and prioritized their top resource concerns and completed a worksheet independently. The NRCS State office compared and evaluated these three NRCS Area worksheets, and aggregated this information into a single state worksheet that identifies top state resource concerns and their associated acreages. These statewide acreages, and their associated priority treatment areas, are what is presented in this document.

SRA Landuse Categories Defined

The NRCS National Office designated the five landuse categories that would be evaluated in the SRA process: Crop, Range, Pasture, Forest and Other Associated Ag Lands. NRCS defines these landuses as:

Crop Landuse Definition - Land used primarily for the production and harvest of annual or perennial field, forage, food, fiber, horticultural and/or energy crops.

Forest Landuse Definition - Land on which the primary vegetation is forest (climax, natural or introduced plant community) and use is primarily for production of wood products and/or non-timber forest products.

Range Landuse Definition - Land used primarily for the production of grazing animals and wildlife. This includes native plant communities and those seeded to native or introduced species, or naturalized by introduced species, that are ecologically managed using range management principles.

Pasture Landuse Definition - Lands composed of introduced or domesticated native forage species that is used primarily for the production of domestic livestock. They receive periodic renovation and/or cultural treatments, such as tillage, fertilization, mowing, weed control, and may be irrigated. They are not in rotation with crops.

Other Associated Ag Landuse Definition - Land associated with farms and ranches that are not purposefully managed for food, forage or fiber and are typically associated with nearby production and/or conservation lands. Shellfish production areas in the tidal and intertidal areas are also included in this landuse description.

This could include incidental areas such as: idle center pivot corners, odd areas, draws, hedgerows, riparian areas, field edges, seasonal and permanent wetlands, rocky outcrop, and other similar areas.

It also includes the headquarters area used for facilities and supporting infrastructure where farming, forestry, animal husbandry and ranching activities are often initiated. This may include dwellings, equipment storage plus farm input and output storage and handling facilities.

In addition, this includes land dedicated to the facilitation and production of high intensity animal agriculture in a confinement facility (Includes areas such as milking barns, holding lots, heavy use areas, waste treatment and storage facilities, composting facilities, feed mixing facilities, poultry houses, farrowing houses, fish production facilities and other equipment or feed storage facilities essential to the production of confined animals).

This may include land enrolled in USDA easement programs that is not used for the production of food, forage, or fiber.

SRA Resource Concern Priority Areas Development

NRCS national guidelines require that the location of the identified priority resource concerns be mapped in a digital format. These geospatial locations are termed “priority treatment areas.” Maps displaying these priority treatment areas are found earlier in this document.

The 2012 SRA priority treatment areas were developed based on the identified resource concerns in the state worksheet. The priority area boundaries were located and digitized through an iterative process. This process included discussions and net-conferences with NRCS Area and State Office resource specialists, and the development and analysis of geospatial resource datasets. The NRCS target for each of the five landuses is non-urban private and tribal lands.

The major sources for identifying the location of the five SRA landuse categories were three geospatial datasets: NRCS Landuse, the Washington State Department of Agriculture (WSDA) Crop and the University of Washington (UW) Forestland Database.

The NRCS Landuse dataset is a reclassification of the 2010 GAP National Land Cover dataset to model the NRCS landuses. The WSDA irrigated cropland subset was merged into the NRCS Landuse data to portray this important feature. The result provided a consistent statewide landuse layer with reasonable detail.

The WSDA Crop dataset was used as a supplement for locating many crop and irrigation subsets. Examples include vineyards, row crops, rill and flood irrigation, and pasture/hay/silage.

The UW Forestland Database is a parcel-based dataset identifying private forestlands. The NRCS utilized the Non-Industrial Private Forest (NIPF) and Designated Forest Lands (DFL) categories from this database to locate the private forestland in the state.

For the most part, these three datasets were used as the underlying data for delineating the priority treatment areas and deriving the acreage estimates. Some examples of other geospatial datasets used to develop the priority treatment areas and acreage estimates include the Farm Service Agency (FSA) CRP lands, Washington State Department of Health (WDOH) Shellfish Growing Beds, and WSDA Dairies.

Pasture as a separate land use is difficult to identify on the west side of the state because it is often located in close association with cropland and hayland. A pasture field may be used as cropland or hayland in rotation, since most acres of pasture are arable. Additionally, many pastures are also used seasonally to produce a crop of hay. The result of this intermingling of uses is that the field may appear as cropland or hayland in the classification systems. It appears that the GAP/NRCS Landuse Pasture class is over reported, and the WSDA Pasture/Hay/Silage subset is somewhat under reported. Pasture from both datasets was used to locate the SRA Pasture treatment areas.

The Other Associated Ag landuse is the most difficult to identify because this is defined as incidental land associated with farms, such as idle center pivot corners, odd areas, headquarters and other similar areas. Geospatial data doesn't exist for many of these listed features so the NRCS used proxy datasets where possible to help identify and delineate the priority treatment areas. Some of the treatment areas and acreages associated with this landuse were developed from information provided by NRCS Resource Specialists based on their expertise and knowledge of local conditions.

The completed geospatial priority treatment areas delineate portions of the five designated landuse categories, many focusing on areas of concentrated resource concerns in the state. Other treatment areas are more broad and inclusive based on the type of resource concern and its distribution within the landuse. Numerous geospatial datasets were acquired or developed to indicate the location of the resource concerns associated with the landuses. These are called "resource concern indicators".

The resource concern indicators are geospatial datasets that show the locations of actual or potential resource issues. A data search was completed by the NRCS that identified the datasets that could be used to indicate the location of the identified SRA resource concerns. These resource concern indicators provide the basis for most of SRA priority treatment area boundaries. As stated earlier, where no geospatial indicator existed for a particular resource concern/landuse combination, the local knowledge and expertise of the NRCS Area specialists was used to identify the priority treatment area boundary.

The graphic below provides an example of how the treatment areas were developed and the acreages derived. This graphic shows the Sheet, Rill and Wind Erosion priority treatment area (in blue) surrounding cropland with a Wind Erosion Index of 86 or above. The data underlying the treatment area is an intersection between the WSDA Crop and the soil survey Wind Erosion Index datasets. In this case, the “acres needing treatment” were derived from the intersected soil/crop layer, which is also the “resource concern indicator” for the Wind Erosion resource concern.

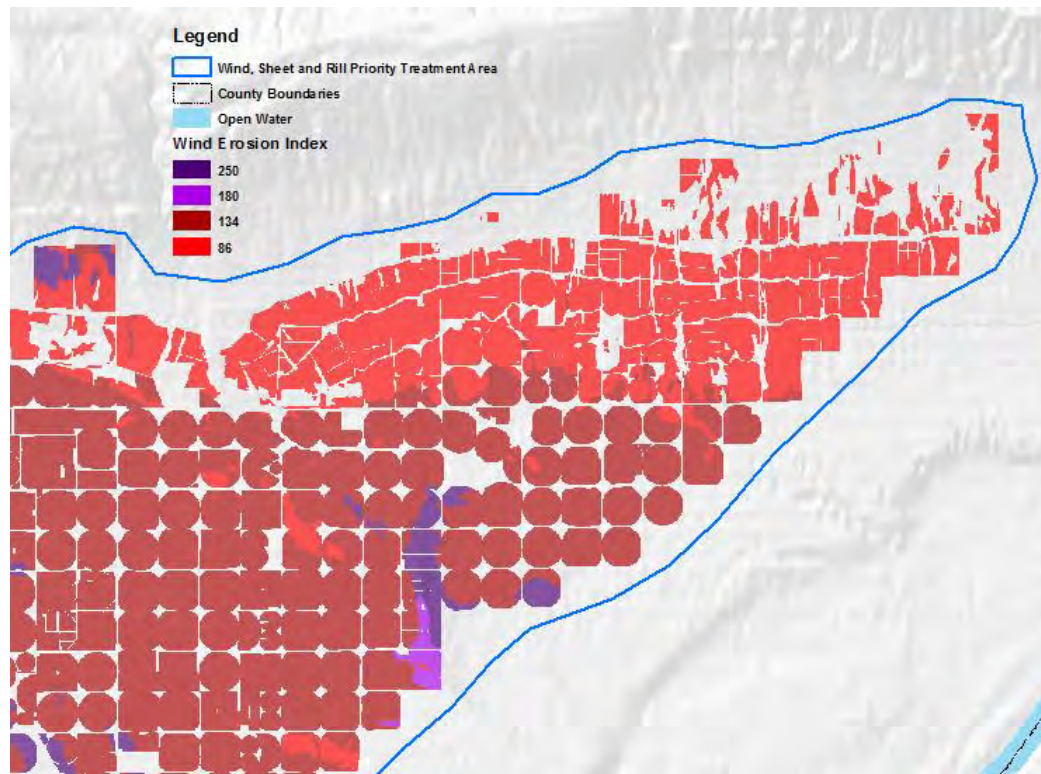


Fig. 62 – Example of Priority Treatment Area Delineation

Each NRCS Area had its own requirements for the development of their priority areas. Some requirements were very specific. Therefore, each of the SRA priority treatment areas were first developed on an NRCS Area basis and then merged into a statewide feature. This is why some of the original 2011 priority treatment areas stopped at the NRCS Area boundaries. As part of the 2012 update, these boundaries were revisited and many were revised.

The priority treatment area geospatial boundaries were originally meant for use at the state and national scale. Therefore the priority areas were developed at a relatively broad and general scale, and should be considered Statewide, or Area-wide, planning level data.

The 2012 SRA update incorporates the findings of the TRA. For the original SRA priority treatment areas, this means that the tribally owned lands are exclusive to the TRA findings and separate from the non-tribal private lands. Therefore, the updated SRA treatment areas do not cover tribally owned lands. Both the SRA and tribal treatment areas are included in this updated 2012 SRA document.

APPENDIX V – The 2012 Tribal Resource Assessment Overview

The intent of this section is to provide an overview of the NRCS 2012 Washington State Tribal Resource Assessment (TRA) process. Additional comprehensive discussions related to the development of the TRA can be found in the published 2012 TRA document.

A Tribal Strategic Plan was developed in 2012 by the NRCS and the Washington Tribal Conservation Advisory Council (WATCAC), with goals and objectives for a three year period. The TRA was slated for development in this Strategic Plan, which identified the TRA as an integral goal and prerequisite for a meaningful and technical basis to assist with NRCS program delivery to tribes in the state.

The TRA provides a mechanism for tribes and NRCS to work together to address resource concerns on tribally owned lands. It documents tribal resource concerns and priority areas, and provides a pathway for the NRCS to assist the tribes in addressing these priorities. The TRA will be used as a multi-year assessment for fiscal years 2013 to 2015, and information from this process will assist the NRCS with funding and program allocation requests to National NRCS starting in Fiscal Year 2014.

The findings and conclusions of the TRA will be used for strategic planning use, specifically for resource-based performance planning. The assessment information will be used for future year planning regarding goals setting; funding and budget requests; and tailoring appropriate program delivery and technical assistance relative to what the tribes in the state set as resource-based priorities.

The TRA is intended to be statewide in scope. Tribal natural resource priorities, and associated treatment boundaries and acreages in respective landuse areas, are identified on tribal lands throughout the state.

As with the SRA, the TRA is based on resource assessment parameters and guidance established by the NRCS National Office. Within these national parameters, NRCS Washington worked with the WATCAC and individual tribes in 2012 to determine the top tribal resource concerns, and the related priority treatment areas and acreages, on tribally owned lands in the state.

NRCS program planning and delivery includes the priority treatment areas as a part of the NRCS screening and ranking tools. Tribal applications for NRCS programs are given a higher ranking if the application addresses one or more of the tribal Priority Resource Concerns in these areas.

The national guidelines designate five landuses to be assessed: Crop, Forest, Range, Pasture and Other Associated Ag lands. The geospatial priority treatment areas locate the identified resource concerns on these landuses.

Also required by the national guidelines is a table identifying the acres of the landuses affected by the identified resource concerns. The Priority Treatment Acres category is the amount of acreage in the table that the tribes would like to treat through NRCS program delivery in fiscal years 2013 to 2015.

NRCS provided each tribe baseline information to help in the determination of their priority treatment areas and acres. This information included maps of concept priority treatment areas on tribal lands, and landuse acreage estimates. The concept priority areas are based on NRCS geospatial landuse data. Some of the tribes decided to use the NRCS baseline data, while other tribes provided their own information. In 2013, tribes will have an additional opportunity to review and update this information.

This is an ongoing process and the 2012 TRA document serves as a first step in working with tribes to identify natural resource concerns that affect tribal resources.

Native American Tribes in Washington State

There are twenty-nine federally recognized tribes in Washington State. The Tribal Lands map on the following page displays the location of each of these tribes.

It is important to note that tribal resource concerns on the east side of the state may vary greatly from tribal resource concerns on the west side of the state. This is because of the broad diversity of land use and climate on either side of the Cascade Mountains divide. There are four tribes located on the east side of the state and twenty-five tribes located on the west side of the state.

Tribes located in eastern Washington State (east of the Cascade Mountains):

- Confederated Tribes of the Colville Reservation, Washington
- Confederated Tribes and Bands of the Yakama Nation, Washington
- *(formerly the Confederated Tribes and Bands of the Yakama Indian Nation of the Yakama Reservation)*
- Kalispel Indian Community of the Kalispel Reservation, Washington
- Spokane Tribe of the Spokane Reservation, Washington

Tribes located in western Washington State (west of the Cascade Mountains):

- Confederated Tribes of the Chehalis Reservation, Washington
- Cowlitz Indian Tribe, Washington
- Hoh Indian Tribe of the Hoh Indian Reservation, Washington
- Jamestown S'Klallam Tribe of Washington
- Lower Elwha Tribal Community of the Lower Elwha Reservation, Washington
- Lummi Tribe of the Lummi Reservation, Washington
- Makah Indian Tribe of the Makah Indian Reservation, Washington
- Muckleshoot Indian Tribe of the Muckleshoot Reservation, Washington
- Nisqually Indian Tribe of the Nisqually Reservation, Washington
- Nooksack Indian Tribe of Washington
- Port Gamble Indian Community of the Port Gamble Reservation, Washington
- Puyallup Tribe of the Puyallup Reservation, Washington
- Quileute Tribe of the Quileute Reservation, Washington
- Quinault Tribe of the Quinault Reservation, Washington
- Samish Indian Tribe, Washington
- Sauk-Suiattle Indian Tribe of Washington
- Shoalwater Bay Tribe of the Shoalwater Bay Indian Reservation, Washington
- Skokomish Indian Tribe of the Skokomish Reservation, Washington
- Snoqualmie Tribe, Washington
- Squaxin Island Tribe of the Squaxin Island Reservation, Washington
- Stillaguamish Tribe of Washington
- Suquamish Indian Tribe of the Port Madison Reservation, Washington
- Swinomish Indians of the Swinomish Reservation, Washington
- Tulalip Tribes of the Tulalip Reservation, Washington
- Upper Skagit Indian Tribe of Washington

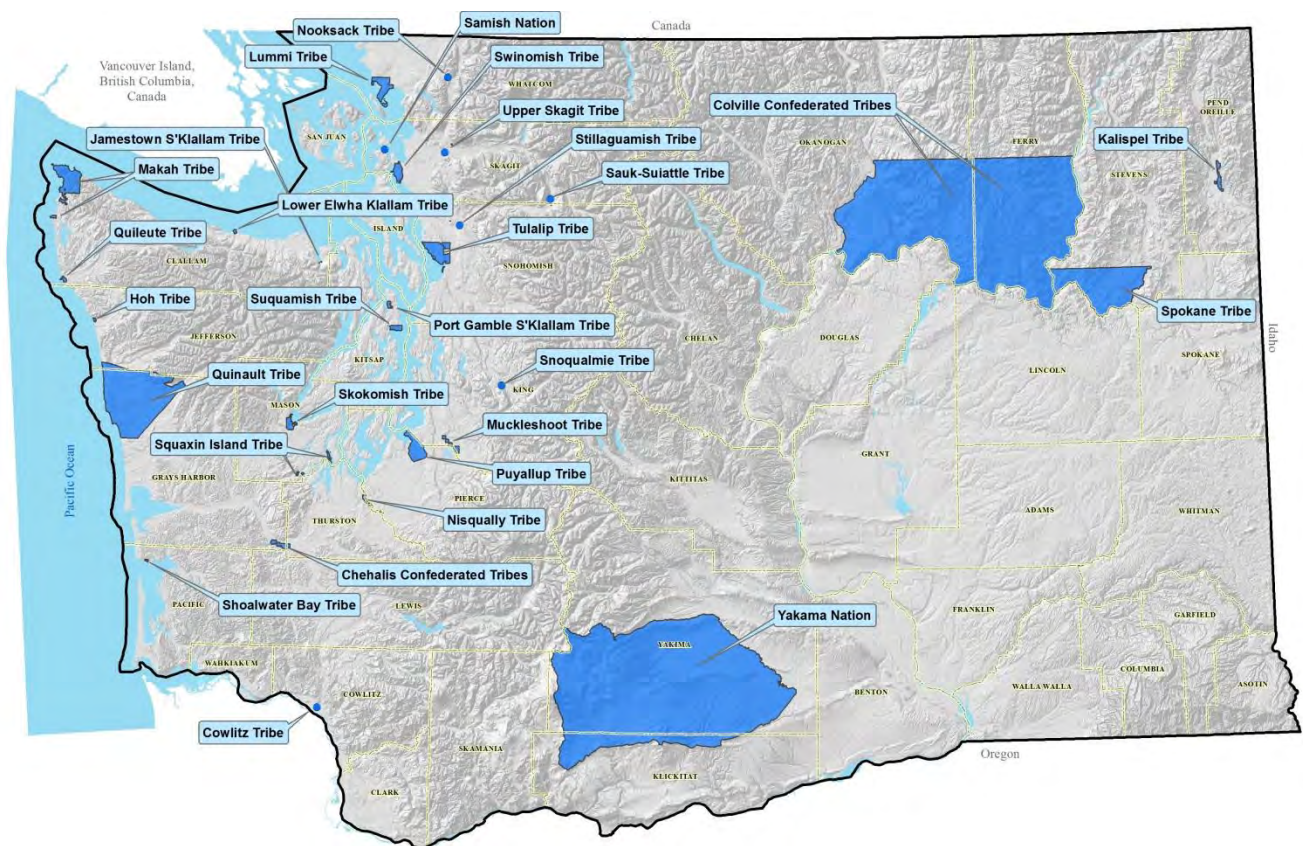


Fig. 63 – Washington State Tribal Locations Map

The federal government recognized tribes as sovereign nations and the rightful owners of all the land in the region. Tribes agreed to give up the land but reserved certain rights on lands outside the boundaries of their 'reservations' to ensure their cultures would survive. On these ceded lands Tribes retained the rights to fish, hunt and gather shellfish, among other activities.

Three other federally recognized tribes have ceded lands in Washington State. They include the Coeur d'Alene Tribe (Idaho), the Confederated Tribes of the Umatilla Indian Reservation (Oregon), and the Nez Perce Tribe (Idaho).

Nineteen tribes in Washington State, plus the Coeur d'Alene Tribe in Idaho, participated in the development of the 2012 TRA.

Tribal Lands in Washington State

The tribes in Washington are the first peoples of this state. As such, the lands that they traditionally call home encompass all of Washington, and, in some cases, extend beyond state borders. They strive to maintain their traditional roles as good stewards of the land, water and wildlife, and to encourage others to respect and cherish these natural resources as well.

The 2012 TRA includes both on-reservation and off-reservation tribally owned lands. Not all off-reservation tribally owned lands are accounted for in this resource assessment. The NRCS needed tribal input for the identification of these lands, and some tribes declined to identify their off-reservation lands, did not have time to provide the information, or did not take part in the assessment process.

Regardless of participation, the NRCS has included tribal lands for twenty-eight of the twenty-nine federally recognized tribes in Washington, plus off-reservation parcels owned by the Coeur D'Alene tribe. Where it was possible to obtain tribal data from public sources, on-reservation and off-reservation tribally owned lands have been included for twenty-eight tribes. The agency's decision to do this provides these tribes the opportunity to take part in NRCS program planning and delivery should they wish to do so.

Tribal Traditional Use Areas

The regions historically occupied by the Northwest Coast and Plateau Indian cultures reflect a vast traditional use area, which reflects a landscape-scale cultural resource. While each culture used specific areas, some places were shared, which furthers the complex nature of these cultural resources. The lands occupied by the Washington State tribes today are reduced significantly from their historic traditional use areas, however, the cultural importance of the traditional use areas remains as significant as in the past. Many tribes retain use of their "usual and accustomed" areas for hunting, fishing, and gathering plants, animals and fish.

The importance of traditional use areas derives from the role these play in each culture's beliefs, customs, and practices. These areas include locations where tribes practice spiritual and/or healing ceremonies, and where the tribes procure foods, medicines, and items of economy. The places provided, and in some cases continue to provide, the connections and resources necessary for maintaining balance in the world as well as cultural identity.

All Washington tribes, and tribes in surrounding states, are concerned about the condition of the resources within their traditional use areas and ceded lands across Washington State. Because the 2012 TRA is focused on on-reservation and off-reservation tribal lands, the tribes asked how NRCS could insure that a positive impact was also made to the natural resources that are located on their traditional use areas.

To address this concern, the NRCS has adopted ranking criteria that specifically cites the tribal priority resource concerns. The intent of these criteria is to speak to tribal concerns on non-tribal private lands. Therefore, if any application for NRCS programs on non-tribal lands can answer "Yes" to either of the following questions, they will receive additional ranking points in the NRCS application process.

1 - Do the practices treat a tribal resource concern?

2 - Are the practices on land adjacent to tribal lands, or in a shared watershed? If so, are the practices compatible with activities on the tribal lands?

This means that non-tribal applications that address tribal priority resource concerns will receive a higher ranking and are therefore more likely to be implemented.

The Tribal Resource Assessment and the WATCAC

The twenty-nine federally recognized tribes in Washington State, and the tribes in neighboring states that own land or have a stake in their traditional cultural areas in Washington, are invited to participate in the WATCAC. The WATCAC works with the NRCS in a similar capacity to the State Technical Advisory Committee (STAC), but focuses its advice and guidance on conservation activities on tribal lands and issues.

The WATCAC is comprised of representatives from participating tribes, and members of NRCS Washington State Leadership. The NRCS Washington Leadership includes a State Tribal Liaison whose responsibility is to work with tribes on NRCS Program Delivery.

The TRA is meant to tailor NRCS program delivery for Tribes. The goal of establishing a TRA is a critical part of the NRCS commitment to integrate Tribal resource priorities in NRCS program delivery unique to Tribal communities in the state.

The NRCS and WATCAC have monthly meetings and two face to face meetings each year to discuss tribal resource concerns. The NRCS and WATCAC will address the identified TRA priorities annually with tactical actions affecting program delivery. This includes NRCS program specifics such as targeting resource priorities, funding needs and treatment goals for resource concerns, and appropriate conservation practice standards and systems.

Through the WATCAC, the tribes were asked to provide input for the TRA. This included identifying their priority resource concerns, assisting NRCS with mapping the priority treatment areas and providing information regarding the location of off-reservation tribal lands.

After careful deliberation, the WATCAC members chose to address eleven priority resource concerns from a list of thirty-one potential resource concerns. It is important to note that the WATCAC considers that each of these identified tribal resource concerns have the same high priority, with no resource concern being more important than another.

The WATCAC members provided reviews, comments and suggestions to the NRCS throughout the development of the TRA. The NRCS wishes to thank all of the tribal members and staff who contributed time and information to this project. Without their guidance, the TRA document could not have been completed.

The 2012 TRA Process

The Tribal Resource Assessment (TRA) was first discussed with the WATCAC at the January 2012 face-to-face meeting at Squaxin Island. The process for developing the State Resource Assessment (SRA), which focuses on Local Work Group-defined resource concerns, was described to provide a sense of what was needed in the TRA.

The NRCS proposed that the WATCAC function as a Tribal Local Work Group to develop the TRA and FY13 funding. The WATCAC was asked to identify the top five resource concerns for the eastern and western Washington tribes. The group started with the resource concerns in the SRA and identified any resource concerns that were not in the SRA.

At the May 2012 WATCAC meeting, initial summaries of eastern and western Washington data were presented. Questions arose as the summaries were developed, including how to resolve the rankings of individual tribes' resource concerns. The decision was made to do the ranking as a group at the June meeting, and to decide then whether to have a statewide tribal, or east-west sets of resource concerns.

The June 2012 WATCAC meeting was a day and a half of intensive work by the group. The meeting produced targets/goals for the next three years, criteria for prioritizing resource concerns, eleven statewide tribal resource concerns, percentages for the landuse funding pools, and a plan for defining the priority treatment areas.

Priority Resource Concerns Development

After the WATCAC meeting in June, discussions were started on the development of the TRA. The first task was for the tribes to determine their priority resource concerns on one or more of the five designated landuses. Once this was done, then the tribal lands, priority treatment areas and acres for the TRA could be determined.

There were thirty-one potential NRCS resource concerns available for the tribal resource assessment process. These are determined by NRCS national guidance.

The WATCAC chose to address eleven of the thirty-one specific resource concerns within the TRA as a result of their discussions. These are their priority resource concerns in the TRA. Once those eleven were identified, the WATCAC requested that those be treated equally important, and all hints of ranking or prioritization among the eleven be eliminated.

Tribal Lands and Priority Treatment Area Development

After the WATCAC determined the eleven tribal priority resource concerns, the tribal lands affected by these resource concerns needed to be identified and geospatial priority treatment areas developed. The NRCS provided baseline information to the tribes to assist with this task. This information included maps of concept tribal priority treatment areas based on NRCS geospatial landuse datasets and potential at-risk acreage estimates.

The participating tribes reviewed the NRCS data and maps. Some of the tribes chose to use the information provided by the NRCS. Some tribes requested that the agency use tribally developed data, which they submitted to the NRCS.

Tribal Priority Treatment Areas

The tribal Priority Treatment Areas locate the identified resource concerns and landuses on tribally-owned lands. The development of these areas was inclusive rather than exclusive to provide the tribes latitude for participation in NRCS program delivery.

NRCS program planning and delivery uses the Priority Treatment Areas as a screening and ranking tool. Tribal applications for NRCS programs are given a higher ranking if the application addresses one or more of the tribal Priority Resource Concerns in these areas.

The Priority Treatment Area boundaries were located and developed through an iterative process that included tribal and NRCS reviews which led to final approval by the tribes. The initial basis for the tribal priority treatment areas was the five landuses on tribal lands.

The NRCS developed a set of concept priority treatment areas and provided these to the tribes for review. Along with the concept priority areas, the NRCS provided landuse acreage reports derived from the geospatial NRCS Landuse dataset.

Each participating tribe either decided to use the NRCS concept priority areas, or requested that the agency use their own locally developed data. This local tribal data was submitted to the NRCS and was incorporated into the TRA.

There are five maps that display the five tribal priority treatment areas. Due to the size of many on-reservation and off-reservation tribally owned lands, not all of the tribally owned lands are readily visible at the map scale used in this document. Since the geospatial Priority Treatment Areas will be used by NRCS planners in Geographic Information System (GIS) software, this scale problem will not affect NRCS program delivery.

The final tribal priority treatment areas are included on maps in the SRA document.

TRA Landuse Acreages

National NRCS guidelines require a table identifying the acres of the landuses affected by the resource concerns. This table includes three acreage categories: “Potential At-Risk Acres”, “Acres Needing Treatment”, and “Priority Treatment Acres”. The Priority Treatment Acres are the amount of acreage that the tribes would like to treat through NRCS program delivery from 2013 to 2015.

Along with the concept priority areas, the NRCS initially provided the participating tribes landuse acreage reports on tribal lands derived from NRCS geospatial landuse information. The tribes were given the option to use the NRCS acreages or supply acreages from their own information.

The final acreages in the TRA are estimates using landuse information from either NRCS or tribal datasets. The individual tribal acreages, some based on specific data and some on percentages, were aggregated into statewide totals for all tribal lands.

Below are the definitions of the acreages required for the table:

- Potential At Risk Acres - land that is at risk or vulnerable to the resource concern regardless of whether conservation treatment has been applied and maintained.
- Acres Needing Treatment - the extent of the land that has not been treated for the resource concern according to FOTG criteria.
- Priority Treatment Acres - the land use acres identified for treatment for a specific resource concern during the 3 year period from FY 2013 through FY 2015.

The final acreage estimates displayed in the TRA tables featured earlier in this SRA document have been rounded up or down to the nearest 100 acres.

APPENDIX VI – References

References

- Colville Confederated Tribes, 2012. Off-reservation tribal lands; geospatial dataset.
- Kalispel Tribe, 2012. Off-reservation tribal lands; hard copy map.
- Lummi Tribe, 2012. Off-reservation tribal lands and landuse; geospatial dataset.
- Makah Tribe, 2012. On-reservation and off-reservation tribal lands, and landuse; geospatial dataset.
- Northwest Indian Fisheries Commission, 2012. State of Our Watersheds Report.
- Port Gamble S'Klallam Tribe, 2012. On-reservation and off-reservation tribal lands; digital map.
- Samish Nation, 2012. On-reservation and off-reservation tribal lands, and landuse; geospatial dataset.
- Snoqualmie Tribe, 2012. On-reservation and off-reservation tribal lands; geospatial dataset.
- Spokane Tribe, 2012. Off-reservation tribal lands; digital map.
- Tulalip Tribe, 2012. On-reservation and off-reservation tribal lands, and landuse; geospatial dataset.
- University of Washington, College of Forest Resources, 2007. Washington State Forestland Database; geospatial dataset, utilizing the following categories in various analyses: Non-Industrial Private Forest (NIPF), Designated Forest land (DFL), tribal forest, forest acres, road feet, forest value, and conversion risk.
- US Forest Service, 2012. Fire Regime Condition Class (LANDFIRE), landscape scale fire, ecosystem, and fuel assessment; geospatial datasets.
- USDA Farm Service Agency, 2013, Conservation Reserve Enhancement Program (CREP) streams; geospatial dataset.
- USDA Farm Service Agency, 2012, Common Land Units (CLU); geospatial datasets, various counties.
- USDA Farm Service Agency, 2012. Conservation Reserve Program (CRP) lands; geospatial dataset.
- USDA Natural Resources Conservation Service, January 2013. Departmental Regulation 1350-002: Tribal Consultation, Coordination, and Collaboration.
- USDA Natural Resources Conservation Service, January 2013. National Planning Procedures Handbook (NPPH), Amendment 5 (180-VI-NPPH, Amend 5).
- USDA Natural Resources Conservation Service, April 2012. Washington NRCS Tribal Program Strategic Plan 2012-2015.
- USDA Natural Resources Conservation Service, April 2011. INV – Guidance for the FY2011 State Resource Assessments.

USDA Natural Resources Conservation Service, February 2011. National Bulletin 290-11-1, State Resource Assessments.

USDA Natural Resources Conservation Service, 2013. Sage Grouse Initiative (SGI) Priority Areas; geospatial dataset.

USDA Natural Resources Conservation Service, 2011. Statewide Soil Survey derivatives: Sheet and Rill Erosion Risk; geospatial dataset.

USDA Natural Resources Conservation Service, 2011. Statewide Soil Survey derivatives: Wind Erodibility Index; geospatial dataset.

USDA Natural Resources Conservation Service, 2010. NRCS Landuse; geospatial dataset. The NRCS Landuse dataset is derived from a combination of the following geospatial data: Gap National Land Cover, Washington State General Ownership dataset, Washington State Department of Agriculture Croplands, and a small portion of the USGS National Land Cover Dataset. The combined attributes were reclassified into NRCS Landuse categories.

USDA Natural Resources Conservation Service, 2010. Potential Native Prairie Zones and Core Prairie; geospatial datasets.

USDA Natural Resources Conservation Service, 2010. NRCS Range Similarity Index; geospatial dataset. This dataset is a reclassification of the 2010 GAP Rangeland. It indicates Range condition and impacts by noxious and invasive species.

USDA Natural Resources Conservation Service, 1982. Annual Wind Erosion: Climatic C Factor Isobars; geospatial dataset. Index of climatic erosivity, specifically wind speed and soil moisture.

USDC U.S. Census Bureau, 2012. American Indian/Alaska Native/Native Hawaiian (AIANNH) Areas; geospatial dataset.

USDI Bureau of Indian Affairs, 2005. American Indian Reservations (AIR); geospatial dataset.

US Geological Survey, 2008. Distribution of Elevated Nitrate Concentrations in Ground Water in Washington State; geospatial dataset. Nitrate concentration probability areas.

Washington State Department of Agriculture, 2011. WSDACrop_2011; Agricultural landuse; geospatial dataset.

Washington State Department of Agriculture, 2011. Dairies2011, dairy locations of dairy farms in Washington State; geospatial dataset.

Washington State Department of Ecology, February 2009. Tribal Lands; geospatial dataset.

Washington State Department of Ecology, 2003. Dairy Farms; geospatial dataset. Locations of dairy farms in Washington State.

Washington State Department of Fish and Wildlife, 2013. Salmonid Stock Inventory (SASI) streams; geospatial dataset.

Washington Department of Health, 2013. Shellfish Growing Areas; geospatial dataset.

Washington State Department of Natural Resources, 2012. Wildland Urban Interface (WUI) areas; geospatial dataset.

Washington State Department of Natural Resources, 2011. Washington State Department of Natural Resources (WDNR) and US Forest Service (USFS) Forest Damage Aerial Detection Survey 1980-2009 (Bugs and Crud); geospatial dataset. Tree mortality due to disease, insects and animals.

Washington State Department of Natural Resources, 2005. Washington Natural Heritage Program (WNHP) Existing Grasslands and Oak Woodlands; geospatial dataset.

Washington Tribal Conservation Advisory Council (WATCAC), June 14-15, 2012. Meeting Minutes; Strategic Planning Session held at Coeur D'Alene Casino, Idaho.

Washington Tribal Conservation Advisory Council (WATCAC), 2012. 2012 Tribal Strategic Plan.

Yakama Nation, 2012. Yakama Reservation Boundary; geospatial dataset.

APPENDIX VII – Acronyms and Abbreviations

Ag – Agriculture

AFO - Animal Feeding Operations

CAFO - Confined Animal Feeding Operation

CNMP - Comprehensive Nutrient Management Plan

CREP - Conservation Reserve Enhancement Program

CRP - Conservation Reserve Program

FSA - Farm Service Agency

GAP – GAP Analysis Program

GIS - Geographic Information System

LWG - Local Work Group

NHD - National Hydrography Dataset

NIPF - Non-Industrial Private Forest Land

NRCS - Natural Resources Conservation Service

Prism - Parameter-elevation Regressions on Independent Slopes Model

PSHIP - Pacific Salmon Habitat Improvement Partnership

SASI - Salmonid Stock Inventory

SIG - Sage Grouse Initiative

SRA – State Resource Assessment

TRA – Tribal Resource Assessment

USDA – United States Department of Agriculture

USDC - United States Department of Commerce

USDI - United States Department of Interior

USFS – United States Forest Service

USGS - United States Geological Survey

WATCAC - Washington Tribal Conservation Advisory Council

WDFW - Washington State Department of Fish and Wildlife

WDNR - Washington State Department of Natural Resources

WDOE - Washington State Department of Ecology

WDOH - Washington Department of Health

WNHP - Washington Natural Heritage Program

WSDA - Washington State Department of Agriculture

WUI - Wildland Urban Interface



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